SERVICE MANUAL

Model Name : EP747

Prepared by SI :

_____

Prepared by TSE :

_____

Checked by :

_____

Approved by :

_____

Date	Revise Version	Description
2005/12/13	V1.0	Initial Issue

Copyright December, 2005 . All Rights Reserved

Preface

This manual is applied to EP747 0.7" DMD XGA digital projection system. It's the mode of single Panel, 180 Watt Compact P-VIP Lamp and 1024(H) x 768(V) resolution. The manual gives you a brief description of basic technical information to help in service and maintaining the product.

Your customers will appreciate the quick response time when you immediately identify problems that occur with our products. We expect your customers will appreciate the service that you offer them.

This manual is for technicians and people who have an electronic background. Send the product back to the distributor for repairing and do not attempt to do anything that is complex or is not mentioned in the troubleshooting.

NOTICE :

The information found in this manual is subject to change without prior notice. Any subsequent changes made to the data herein will be incorporated in further edition.

Copyright 2005, December
All Rights Reserved
Manual Version 1.0

Table of Contents

Chapter 1	**Introduction**	**1-1**
	Highlight	1-1
	Mechanical Specification	1-2
	Optical Specification	1-2
	Environment	1-3
	Compatible Mode	1-5
Chapter 2	**Disassembly of Procedure**	**2-1**
	Equipment Needed	2-1
	Disassemble Lamp, Top Cover, Keypad Board and IR Receiver	2-2
	Disassemble I/O Cover, Main Board, Lamp Driver, LVPS and Axial Fan Module	2-6
	Disassemble Engine Module, DMD Chip, DMD Board, Color Wheel and Photo Sensor Board	2-11
	Disassemble Focus Ring, DMD Fan, Speaker, Blower Fan and Elevator Module	2-14
Chapter 3	**Troubleshooting**	**3-1**
	Equipment Needed	3-1
	Main Procedure	3-1
Chapter 4	**Function Test and Alignment Procedure**	**4-1**
	Test Equipment Needed	4-1
	Service Mode	4-1
	Test Condition	4-2
	Inspection Procedure	4-2
Chapter 5	**Firmware Upgrade Procedure**	**5-1**
	Equipment Needed	5-1
	Installation Procedure	5-1
	Firmware Upgrade Procedure	5-6

Chapter 6 EDID Key-in Procedure 6-1
Equipment Needed 6-1
Setup Procedure 6-2
DDC Key-in Procedure 6-2

Appendix A 7-1
Exploded Overview 7-1

Appendix B 7-17
PCBA Code Definition 7-17

Appendix C 7-18
Serial Number System Definition 7-18
Reader's Response 7-19

Introduction

1-1 Highlight

No	Item	Description
1	Resolution	True 1024x768 resolution, 16.7M True colors
		Maximum resolution SXGA+ 1400*1050
2	DMD Chip	0.7'' XGA DDR DMD XGA
3	ID	H72 Housing ID
4	Lamp	Osram P-VIP 180-230Watt 1.0arc gap E20.5 Lamp (user re-placeable)
5	Brightness	3000 lumens
6	Contrast Ratio	2000:1
7	Weight	7.1 lbs.
8	Lens	Manual focus projection 1:1.2 zoom lens
9	Electrical Spec	Auto image signal detect using most recently used signal as priority
		NTSC/PAL/SECAM video capability with composite and S-Video
		HDTV video (480i/p, 576i/p, 720p, 1080i) with 480i/576i/1080i deinterlacing
		Photocatalysis (O2air) Technology
		VGA with Audio 1 (could by fixed)
		1 audio outRS232/mini connector (not D-Sub9)
		DVI-I (connector) (accept DVI-Dsignal) with HDCP

No	Item	Description
8	Electrical Spec	Wireless remote with mouse and laser pointer
		Dual VGA (d-sub 15) (support SCART/RGB/YPbPr)
9	Compatibility	SXGA+/SXGA/XGA/SVGA/VGA/MAC
10	Speaker	one 3 Watt speaker
11	Audio	4 audio in and 1 audio out

1-2 Mechanical Specification

No	Item	Description
1	Weight	Approximate 7 lbs
2	Projector control key-pad	Power/standby, Directional keys, enter, source, menu
3	Power indicator lights	“Lamp” Red:blinking red for fan locked “Temp” Red “Power” Green:blinking green (warming up) orange (cooling up)
4	Cooling System	- Advanced air flow - Fans with low system acoustic noise level - Temperature control circuits with adaptive voltage control fan speed - High Altitude fan setting for user setting
5	Tilt Angle	7 degrees with elevator mechanism

1-3 Optical Specification

No	Item	Description
1	DMD	Single 0.7” 12D DDR DMD XGA
2	Resolution	Native 4:3, 1024*768 resolution
3	Brightness	2040 lumens (Minimum) 2550 lumens (Typical)

No	Item	Description
4	Contrast	1200:1 (Minimum) 1500:1 (Typical)
5	Uniformity	65% (Minimum) 75% (Typical)
6	Displayable colors	16.7 million colors 256 shades of gray
7	Color tem-perature:	7500ºK (Low, Mid, High selectable) adjustable to 6500ºK - 9500ºK
8	Projectors lens	1.2x zoom lens, 2.0 – 2.4 throw ratio With ability to attach long throw and short throw lens
9	screen size	Adjustable from 30.75” to 300”.(Diagonal)
10	Projection distance	1.5 – 12.2meter
11	Keystone	+/- 16% Vertical only (DDP2000)

1-4 Environment

No	Item	Description
1	Temperature	- Operating: 5 -- 35°C - Storage: -20 -- 60°C
2	Maximum Humidity	- Operating: 5 -- 35°C, 80% non-condensing - Storage: -20 -- 60°C, 80% non-condensing
3	Acoustic noise level	- 37dB (A)(Typical, 23 ± 2ºC) with wind tunnel design 37 dB(A) 230W Normal mode. 32 dB(A) 180 W ECO-mode. Follow ISO-7779 regulation sound pressure level A weighting measurement
4	Lamp life	-2000 hours typical, 50% survival rate (Full power Mode) -4000 hours min, 50% survival rate (Eco Mode)

No	Item	Description
5	Altitude	- Operating 0~2,500 ft 5°C~35°C 2,500~5,000 ft 5°C~30°C 5,000~10,000 ft 5°C~25°C - Storage 40,000 ft (Max)
6	MTBF	12000 HRs

1-5 Compatible Mode

Analog

Compatibility	Resolution	V-Sync [Hz]	H-Sync [KHz]
VGA	640x350	70	31.5
	640x350	85	37.9
	640x400	85	37.9
	640x480	60	31.5
	640x480	72	37.9
	640x480	75	37.5
	640x480	85	43.3
	720x400	70	31.5
	720x400	85	37.9
SVGA	800x600	56	35.2
	800x600	60	37.9
	800x600	72	48.1
	800x600	75	46.9
	800x600	85	53.7
XGA	1024x768	60	48.4
	1024x768	70	56.5
	1024x768	75	60.0
	1024x768	85	68.7
SXGA	1280x1024	60	63.98
	1280x1024	75	79.98
SXGA+	1400x1050	60	63.98
MAC LC 13”	640x480	66.66	34.98
MAC II 13”	640x480	66.68	35
MAC 16”	832x624	74.55	49.725
MAC 19”	1024x768	75	60.24
MAC	1152x870	75.06	68.68
MAC G4	640x480	60	31.35
I Mac DV	1024x768	75	60
I Mac DV	1152x870	75	68.49
I Mac DV	1280x960	75	75

Digital

Mode	Resolution	V-Sync [Hz]	H-Sync [KHz]
VGA	640x350	70	31.5
	640x350	85	37.9
	640x400	85	37.9
	640x480	60	31.5
	640x480	72	37.9
	640x480	75	37.5
	640x480	85	43.3
	720x400	70	31.5
	720x400	85	37.9
SVGA	800x600	56	35.2
	800x600	60	37.9
	800x600	72	48.1
	800x600	75	46.9
	800x600	85	53.7
XGA	1024x768	60	48.4
	1024x768	70	56.5
	1024x768	75	60.0
	1024x768	85	68.7
SXGA	1280x1024	60	63.98
SXGA+	1400x1050	60	63.98

Disassembly Process

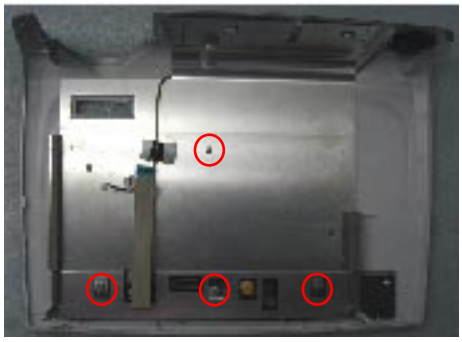
2-1 Equipment Needed

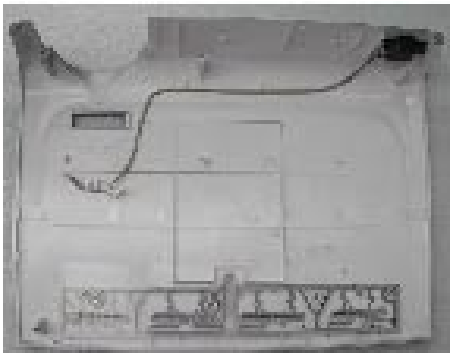
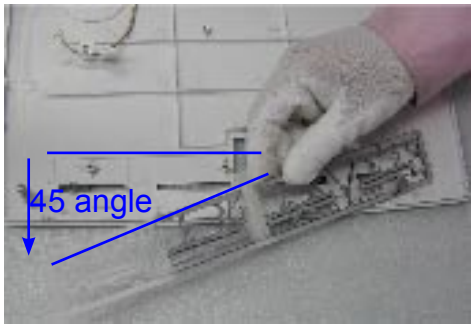
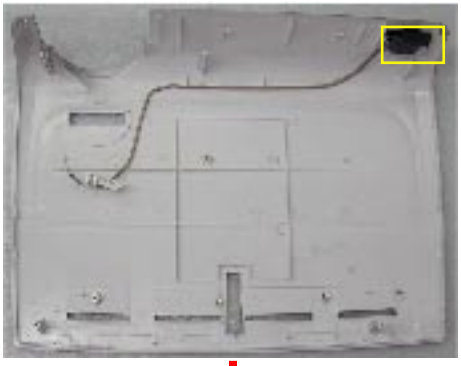
Item	Photo	Item	Photo
Screw Bit (+) :107		Hex Sleeves 5mm	
Hex Sleeves 8mm		Tweezers	

2-2 Disassemble Lamp, Top Cover, Keypad Board and IR Receiver

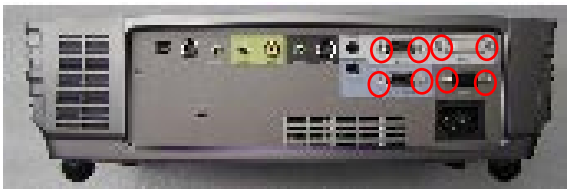
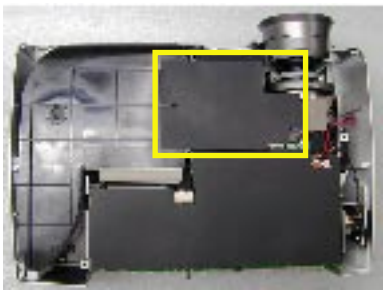
No	Procedure	Photo
1	Unscrew 1 screw to remove Lamp Cover	
2	Unscrew 2 screws to remove Lamp Module	 Lamp

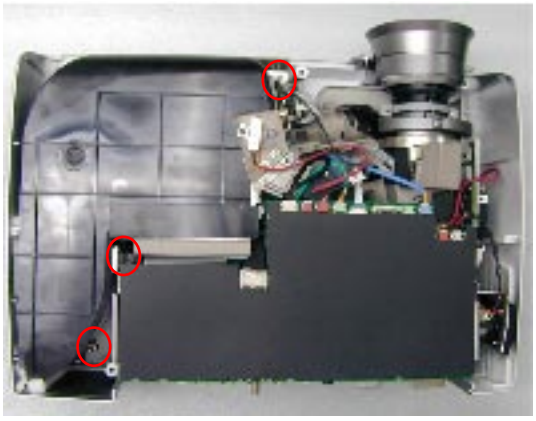
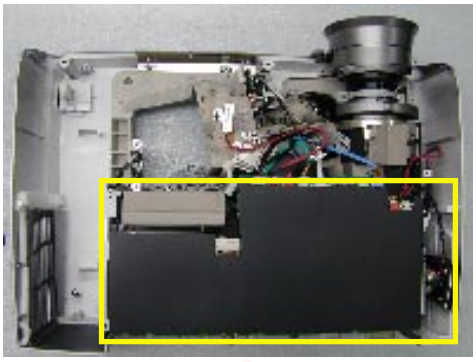
No	Procedure	Photo
3	Unscrew 5 screws and unplug FPC Wire to remove Top Cover	 Top Cover FPC Wire

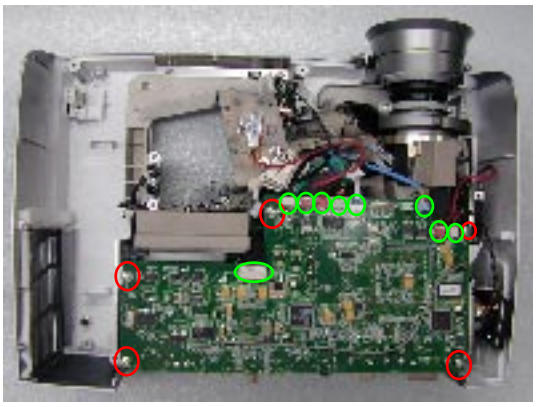
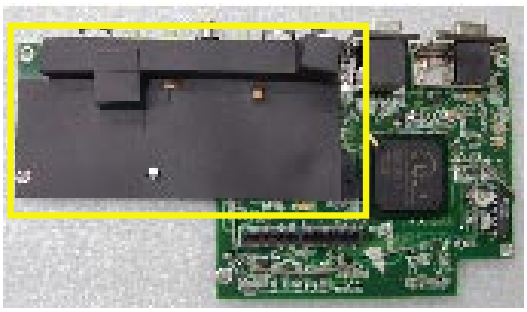
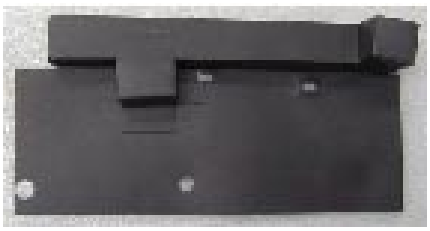
No	Procedure	Photo
4	Unscrew 4 screws to remove Top Shielding Module	 Top Shielding Module
5	Unscrew 1 screw to remove Keypad Board	Keypad Board

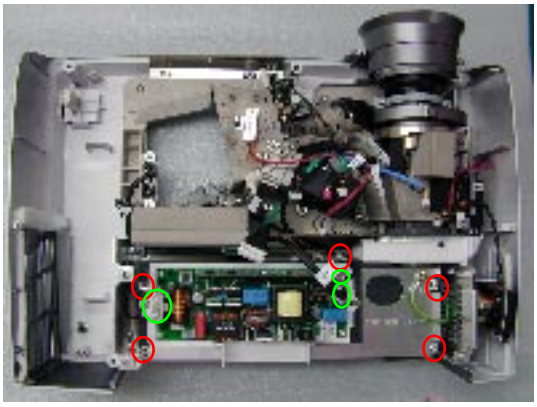
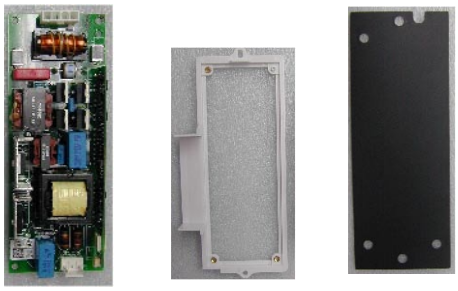
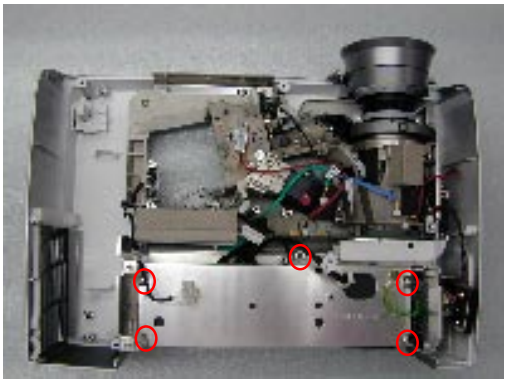
No	Procedure	Photo
6	Remove Keypad Button directly. Notice: please turn Keypad Button at 45 angle	  Keypad Button
7	Remove IR receiver, Mylar and lens from Top Cover directly.	 IR Receiver

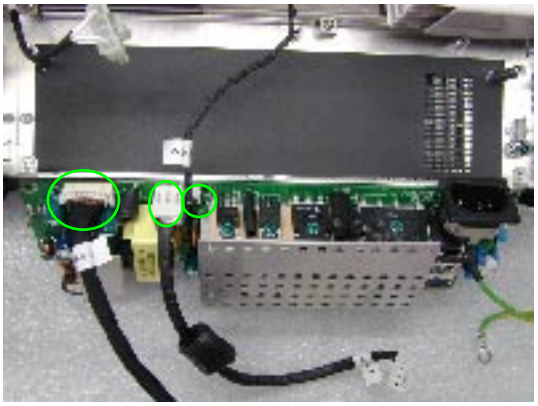
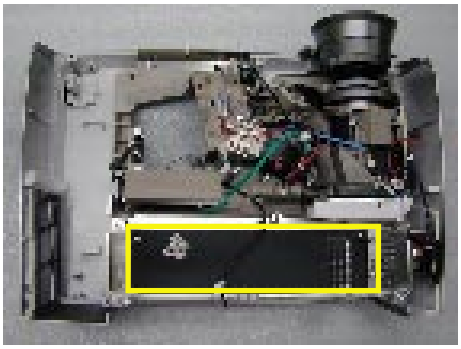
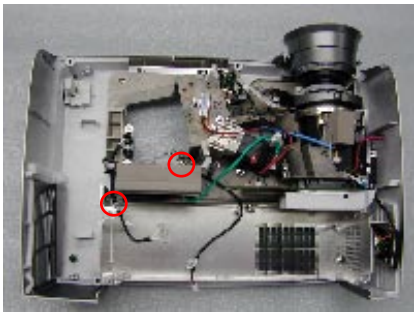
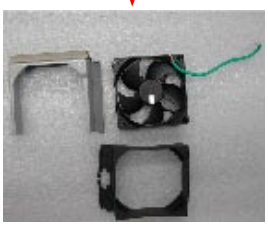
2-3 Disassemble I/O Cover, Main Board, Lamp Driver, LVPS and Axial Fan Module

No	Procedure	Photo
1	Unscrew 8 hex screws to remove I/O Cover and I/O Shielding Moudle.	 I/O Cover I/O Shileding Module
2	Remove Light Cut Mylar.	 I/O Shileding Module

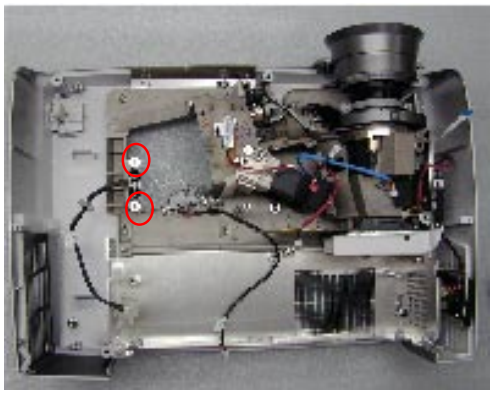
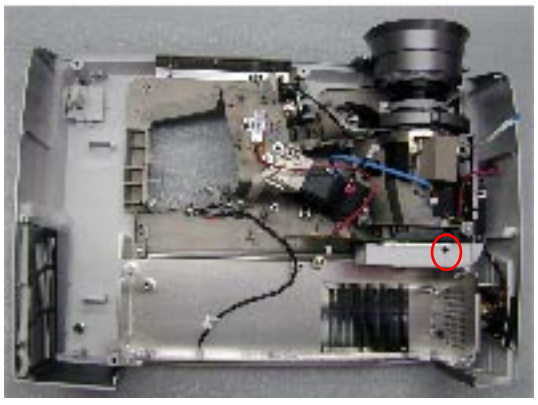
No	Procedure	Photo
3	Unscrew 3 screws to remove Air Duct Module.	 Air Duct Module
4	Remove Isolator Mylar directly.	 Isolator Mylar

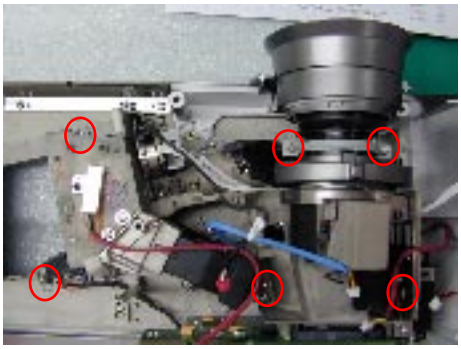
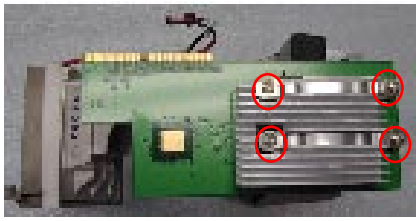
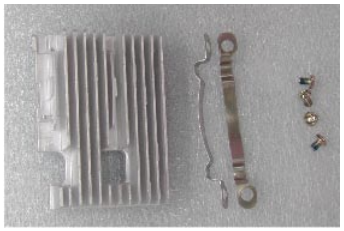
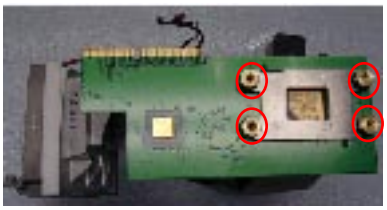
No	Procedure	Photo
5	Unscrew 5 screws and unplug 9 connectors to remove Main Board	 Main Board
6	Remove Main Board Mylar from Main Board.	  Main Board Mylar

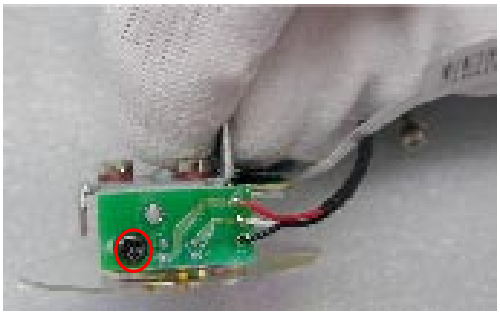
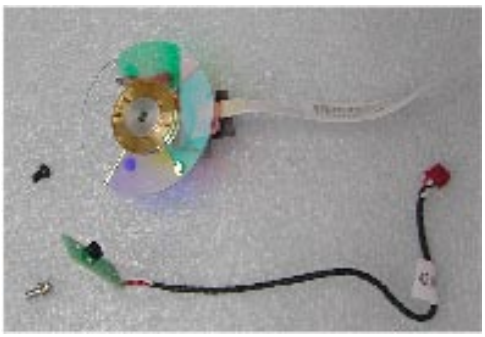
No	Procedure	Photo
7	Unscrew 5 screws and unplug 3 connectors to remove Lamp Driver, Lamp Driver Holder and Lamp Driver Mylar.	  Lamp Driver Lamp Driver Holder Lamp Driver Maylar
8	Unscrew 5 screws to re-move LVPS Shielding Module.	 LVPS Shielding Module

No	Procedure	Photo
9	Unplug 3 connectors to remove LVPS.	
10	Take off Maylar directly.	 Mylar
11	Unscrew 2 screws to remove Axial Fan Module.	  Axial Fan module

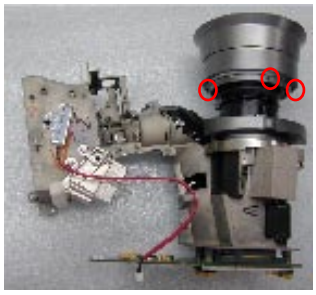
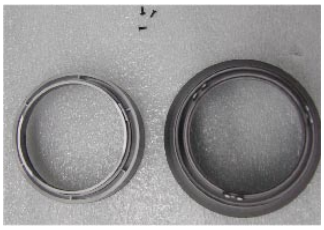
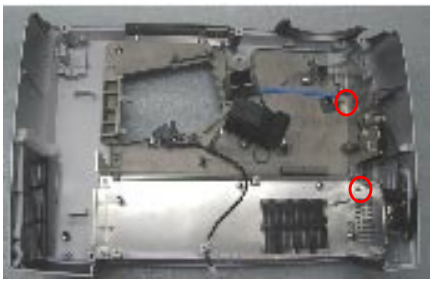
2-4 Disassemble Engine Module, DMD Chip, DMD Board, Color Wheel and Photo Sensor Board.

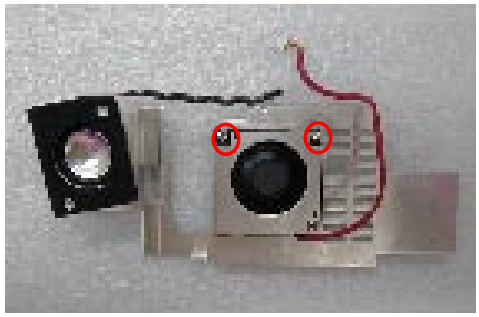
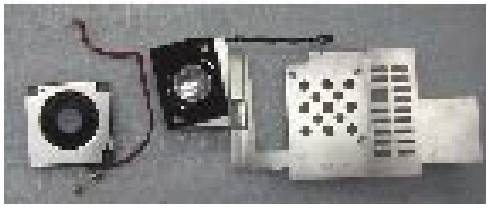
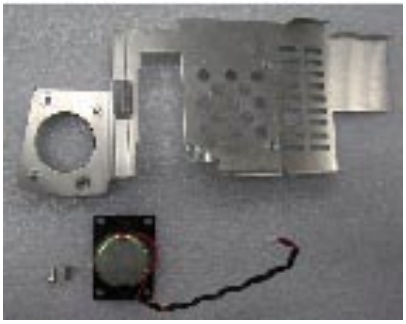
No	Procedure	Photo
1	Unscrew 2 screws to remove Wire 2P#22 220C.	 Wire 2P#22 220C
2	Unscrew 1 screw to remove Blower Duct.	 Blower Duct

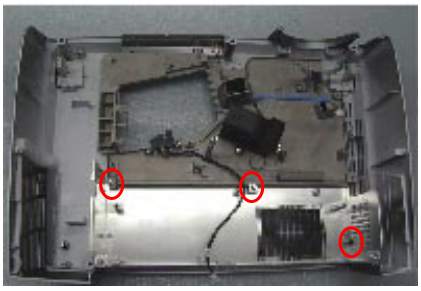
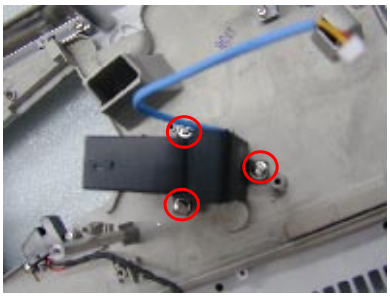
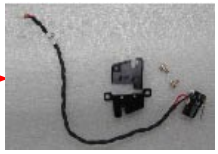
No	Procedure	Photo
3	Unscrew 6 screws to remove Engine Module and Upper Lens Supporter.	 Engine Module Upper Lens Supporter
4	Unscrew 4 screws to remove Heatsink and 2 Springs.	  Heatsink & 2 Springs
5	Unscrew 4 hex screws to remove DMD Board and DMD Chip.	 DMD Board & DMD Chip

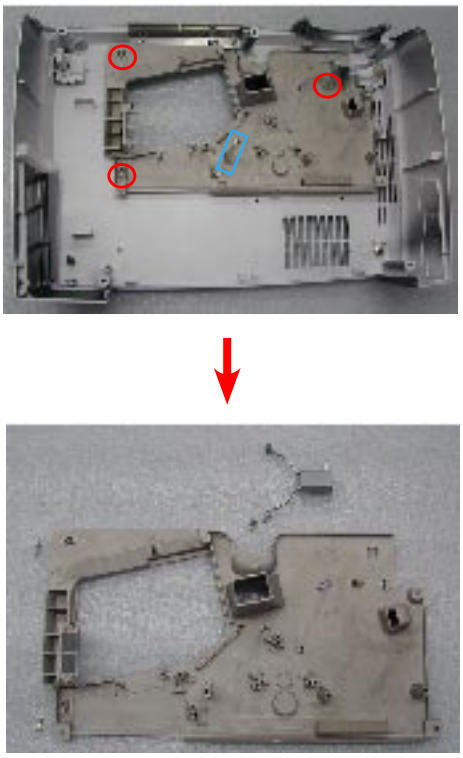
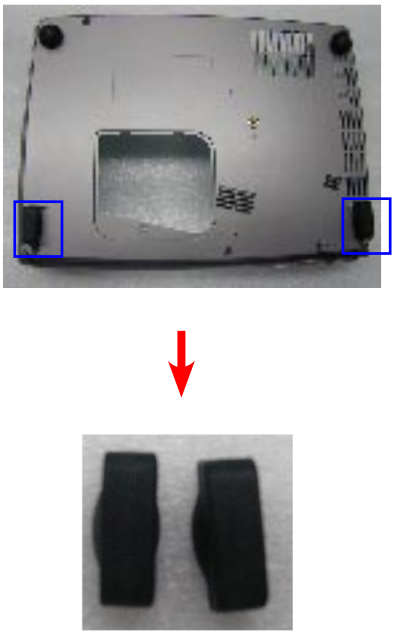
No	Procedure	Photo
6	Unscrew 2 screws to remove Color Wheel and Photo Sensor Board.	   Color Wheel & Photo Sensor Board

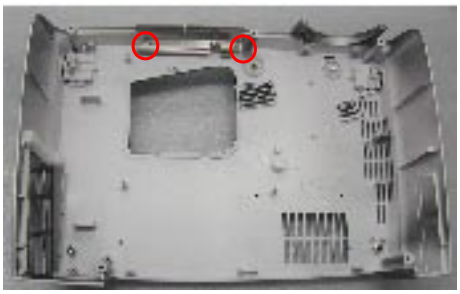
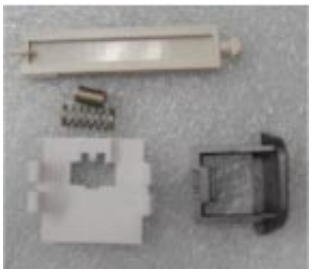
2-5 Disassemble Focus Ring, DMD Fan, Speaker, Blower Fan and Elevator Module

No	Procedure	Photo
1	Unscrew 3 screws and use a tweezers to loose 3 tenons to separate Replace Ring from Focus Ring.	  Replace Ring & Focus Ring
2	Unscrew 2 screws to remove DMD Fan and Speaker modulen from Buttom Module.	 DMD Fan & Speaker

No	Procedure	Photo
3	Unscrew 4 screws to break down DMD Fan and Speaker.	  

No	Procedure	Photo
4	Unscrew 3 screws to remove Power Shielding Module.	 Power Shielding Module
5	Unscrew 3 screws to remove Blower Fan.	 Blower Fan
6	Unscrew 2 screws to remove Interrupt Switch Module.	 Interrupt Switch Module

No	Procedure	Photo
7	Unscrew 3 screws to remove Bottom Base and Down Less Supporter.	 Bottom Base & Down Less Supporter
8	Take off Elevator Foot directly.	 Elevator Foot

No	Procedure	Photo
9	Unscrew 2 screws to remove Front Shielding Module.	 Front Shielding Module
10	Turn Bottom Cover to the obverse side and use a tweezers to loose the tenon to remove Elevator Module.	  Elevator Module

Troubleshooting

3-1 Equipment Needed

- PC or Pattern Generator
- DVD Player (Video, S-Video, Audio)
- Quantum Data 802B or CHROMA 2327

3-2 Main Procedure

No	Symptom	Procedure
1	**No Power**	- Ensure the Power Cord and AC Power Outlet are securely connected - Check Lamp Cover and Interrupt Switch - Ensure all connectors are securely connected and aren't broken - Check DC-DC - Check Ballast - Check Main Board
2	**Auto Shut Down**	- Check LED Status a. Lamp LED Light - Check Lamp - Check Lamp Driver - Check Main Board b. Temp LED Light - Check Thermal Sensor - Check Thermal Switch - Check Fan c. Color Wheel - Check Color Wheel - Check Photo Sensor
3	**No Image**	- Ensure the Signal Cable and Source work (If you connect multiple sources at the same time, use the "Source" button on the control panel to swtich) - Ensure all connectors are securely connected and aren't broken - Check Main Board - Check DMD Board - Check Color Wheel - Check DMD Chip - Check Engine Module

No	Symptom	Procedure
4	**No Light On**	- Ensure all connectors are securely connected and aren't broken - Check Lamp Module - Check DC-DC - Check Ballast - Check Main Board
5	**Mechanical Noise**	- Check Color Wheel - Check Fan Module
6	**Line Bar / Line Defect**	- Check if the DMD Chip and the DMD Board are assembled properly - Check DMD Board - Check DMD Chip - Check Main Board
7	**Image Flicker**	- Do "Reset" of the OSD Menu - Ensure the Signal Cable and Source work - Check Lamp Module - Check Color Wheel - Check DMD Board - Check Main Board
8	**Color Abnormal**	- Do "Reset" of the OSD Menu - Adjust Color Wheel Index - Check Main Board - Check DMD Board - Check Color Wheel
9	**Poor Uniformity / Shadow**	- Ensure the Projection Screen without dirt - Ensure the Projection Lens is clean - Ensure the Brightness is within spec. (Replace the Lamp if the Brightness is less than spec.) - Check Engine Module
10	**Dead Pixel / Dust (Out of spec.)**	- Ensure the Projection Screen without dirt - Ensure the Projection Lens is clean - Clean DMD Chip and Engine Module - Check DMD Chip - Check Engine Module
11	**Garbage Image**	- Ensure the Signal Cable and Source work - Check Main Board - Check DMD Board

No	Symptom	Procedure
12	**Remote Controll or Control Panel Failed**	- Remote Control a. Check Battery b. Check Remote Control c. IR Receiver - Control Panel a. Check FPC b. Check Keypad c. Check Main Board
13	**Function Abnormal**	- Do “Reset” of the OSD Menu - Check Main Board - Check DMD Board

Function Test & Alignment Procedure

4-1 Test Equipment Needed

- IBM PC with XGA resolution (Color Video Signal & Pattern Generator)
- DVD player with Multi-system (NTSC/PAL/SECAM), equipped “Component”, “S-Video” and “Composite”
- HDTV Tuner or Source (480P, 720P, 1080i)
- Minolta CL-100
- Quantum Data 802B or CHROMA2327
- After changing parts, check the information below.

Charge Parts/ Update	Version Update	Color Wheel Index	PC Calibration	YPbPr Calibration	Reset Lamp Use Time	Factory Reset	EDID
M/B	v	v	v	v		v	v
FW	v					v	
Color Wheel		v					
Lamp Module					v		

4-2 Service Mode

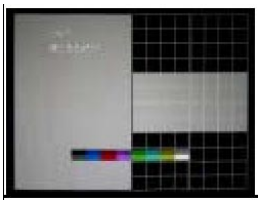
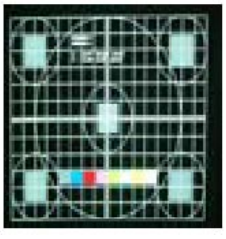
No	Item	Step
1	**Service Mode**	1. Turn on the projector and input the signal. 2. Press and hold “Select“ and “Menu“ simultaneously. 3. “Service Mode Menu” will be shown after pressing “Menu” and “Select” for 3 seconds. 4. After confirming the configuration, press “Menu” and exit.
2	**Factory Reset**	After final QC step, we have to erase all saved change again and restore the factory defaults. The following actions will allow you to erase all end-users’ settings and restore the original setting: 1. Please enter Menu. 2. Use OSD to reset.

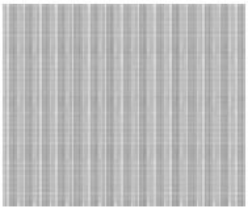
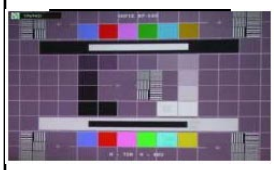
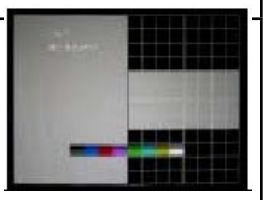
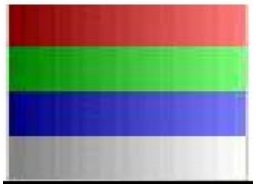
4-3 Test Condition

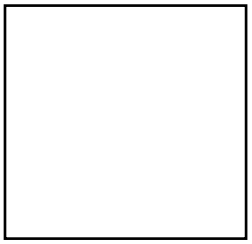
- Circumstance Brightness : Dark room less than 0.5 lux.
- Inspection Distance : 1.5m~3m for functional inspection
- Screen Size : 60 inches diagonal (wide)
- After repairing each EP747, the unit should be burn-in (Refer to the table below).

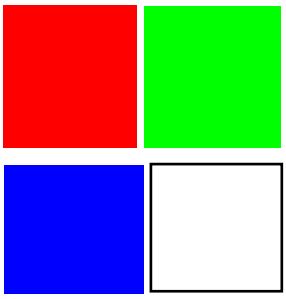
Symptom	Burn-in Time
Normal Repair	2 Hours
NFF	4 Hours
Auto Shutdown	6 Hours

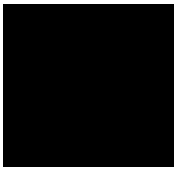
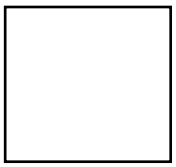
4-4 Inspection Procedure

No	Step	Specification	Procedure	Photo
1	Frequency and Tracking	Eliminate visual wavy noise by Rsync, Frequency or Tracking selection.	- Test Signal : 1024x768@60Hz - Test Pattern : General-1 - check and see if image sharpness and focus are well-performed. - If not, re-adjust by the following steps: (1) Select “Frequency” function to adjust the total pixel number of pixel clock in one line period. (2) Then, select “Tracking” function and use right or left arrow key to adjust the vgalue to minimize video flicker.	
2	Boundary	Horz. And Vert. position of video should be adjustable to be the screen frame.	- Test Signal : 1024x768@60Hz - Test Pattern : General - Adjust Resync or Frequency / Tracking / H. Position / V. Position to the inner of the screen.	

No	Step	Specification	Procedure	Photo
3	Focus	The text in the corner should be clear after adjust the focus ring.	- Test Signal : 1024x768@60Hz - Test Pattern : Ful-xga - Adjust the center clearly; meanwhile, one slightly vague corner in the image is allowed.	
4	HDTV	No discolor	- Test Signal : 720p, 1080i - Test Pattern : Master - Equipment: Quantum Data 802B or CHROMA2327 *Please refer to page 4~7 to enter Service Mode. Use 720P&1080i signal, Master pattern to do HDTV test. Color can-not discolor to purple and blue. If the line disclors, it's normal. If the test result was in discoloration or flicker-ing, please return the unit back to the repair center.	
5	Color Performance		- Test Signal : 1024x768@60Hz - Test Pattern : PANA-ICON Pattern & 64 GRAYS RGBW - Please check and ensure if each color is normal and distin-guishable. - If not, please adjust color index of the Engineering Mode. - Fix OSD to re-sync or track Frenquency.	 

No	Step	Specification	Procedure	Photo
6	**Screen Uniformity**	Should be compliant with 60%.(Minimum)	- Test Signal : 1024x768@60Hz - Test Pattern : Full White Pattern & Full Black Pattern - Please check and ensure the unit is under the spec. - Please check and see if it's in normal conidtion. - If not, please return the unit to repair area.	
7	**Light Leak**	The unit can't accept the leak-age is brighter than Gray 10 pattern	- Test Signal : 1024x768@60Hz - Test Pattern : Gray 10 Pattern - Please check and see if the light leaks ***Note*** - The unit cannot accept the leakage is brighter than Gray 10 Pattern Note: Light leak on reflective edge, eyecatcher, bond wires and exposed metal.	

No	Step	Specification	Procedure	Photo
8	**Calibration**	Calibration Pattern should be in full screen mode	- Once Main Board is changed, firmware upgrade, YPbPr Calibration & PC Calibration should be done as well. - YPbPr Calibration - Test Signal : 480P - Test Pattern : TV BAR **- PC Calibration** - Test Signal : 1024x768@60Hz - Test Pattern : White (up) Black (down) Note: 1. Calibration Pattern should be in Full Screen Mode. 2. Please refer to ***4-2. Guide to Entering Service Mode and Facotry Reset*** for entering Service Mode. 3. Choose and access YPbPr Calibration & PC Calibration for correction in Service Mode. Choose “Menu” to leave the Service Mode after all.	
9	**R, G, B and White Color Performance**	Each R, G, B color should be normal without color abnormal issue.	- Test Pattern : R, G, B and White Color	

No	Step	Specification	Procedure	Photo
10	Dead Pixel (Bright pixel)	Cannot accept any bright pixel	- Test Pattern : Full Black	
	Dead Pixel (Dark pixel)	The numbers of dead pixel should be smaller or amount to 6 pixel.	- Test Pattern : Full White	
11	Blemish (Bright)	The bright blemish cannot be accept-ed if the problem appear with Gary 30 pattern	- Test Pattern : Gray 30	
12	Blemish (Dark)	The dark blemish cannot be accept-ed if the problem appear with Blue 60 pattern.	- Test Pattern : Blue 60	

Firmware Upgrade

Equipment Needed

Software : (DDP 2000- USB)

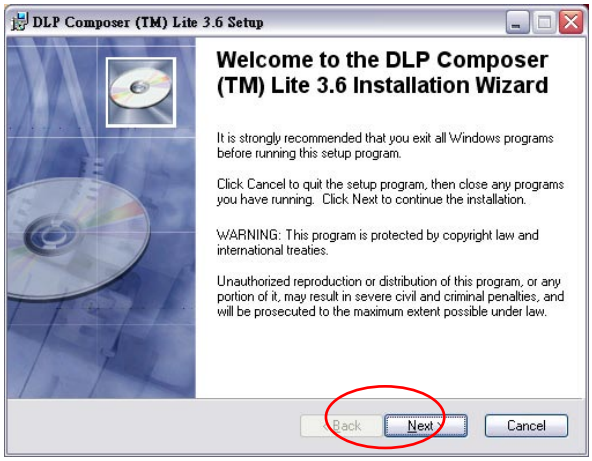
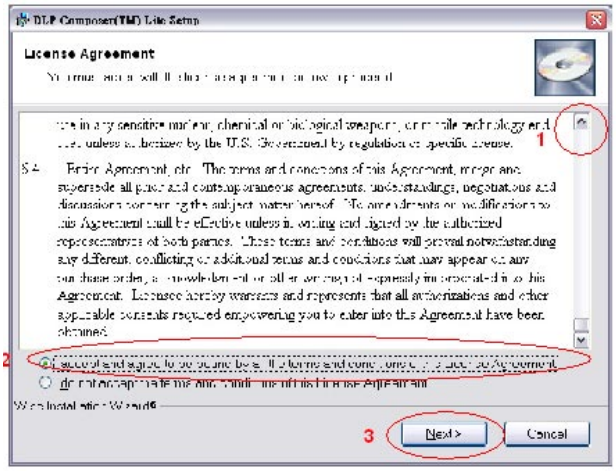
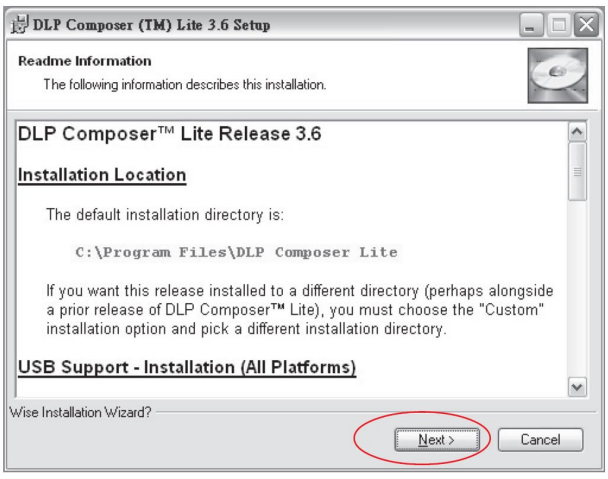
- DLP Composer
- Firmware (EP747)

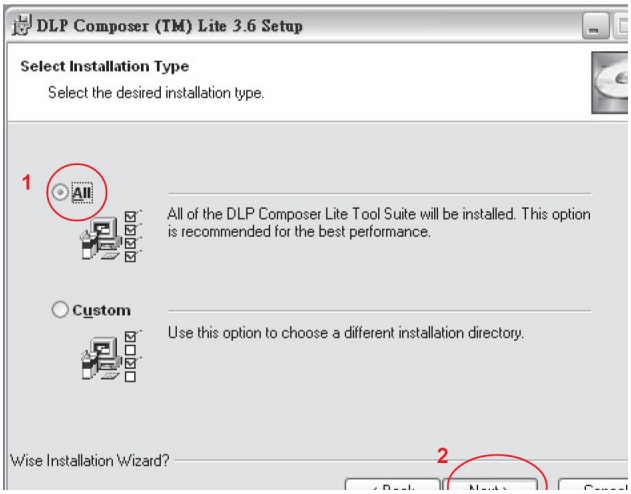
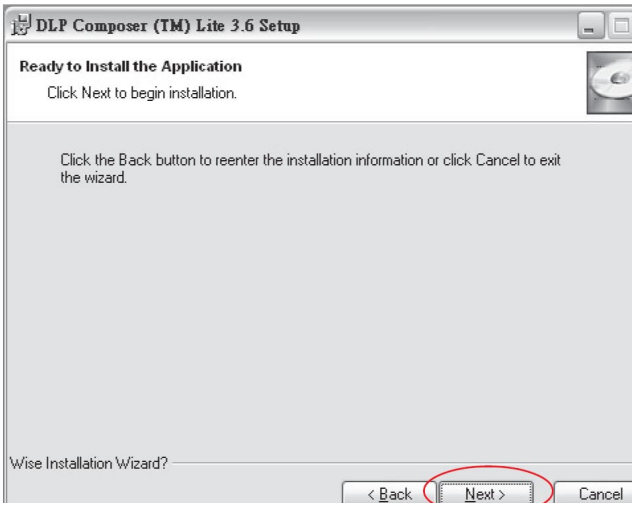
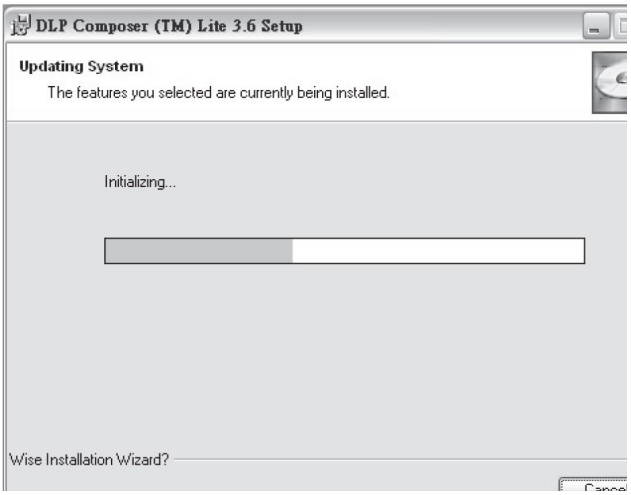
Hardware :

Item	Photo	Item	Photo
Projector (EP747)		USB Cable	
Power Cord		PC or Lap-top	

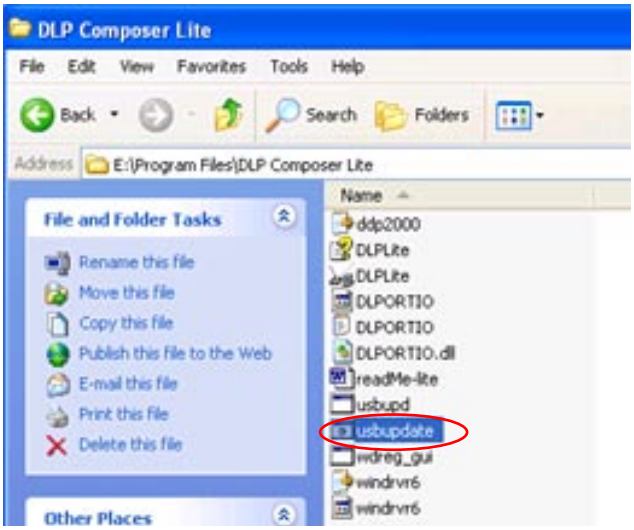
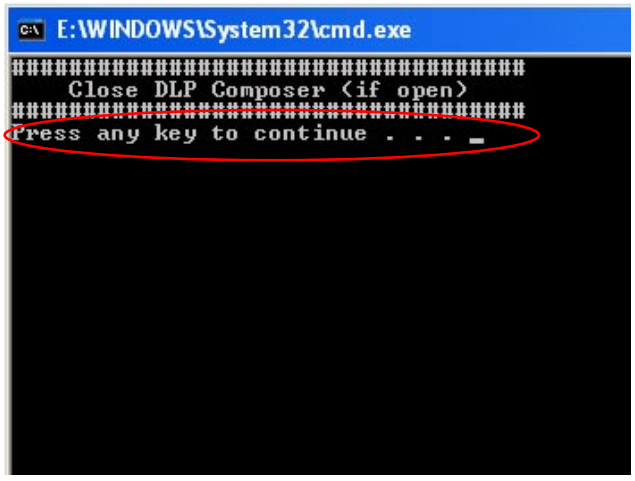
Installation Procedure

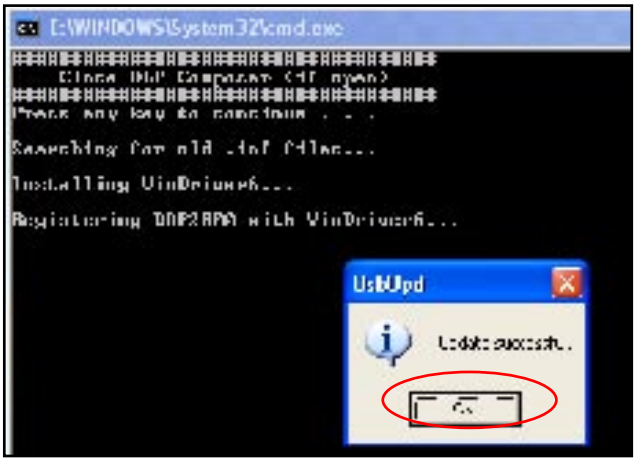
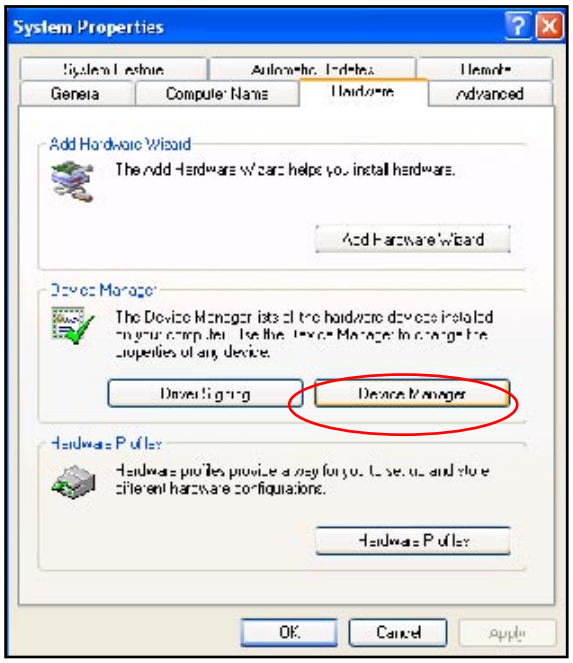
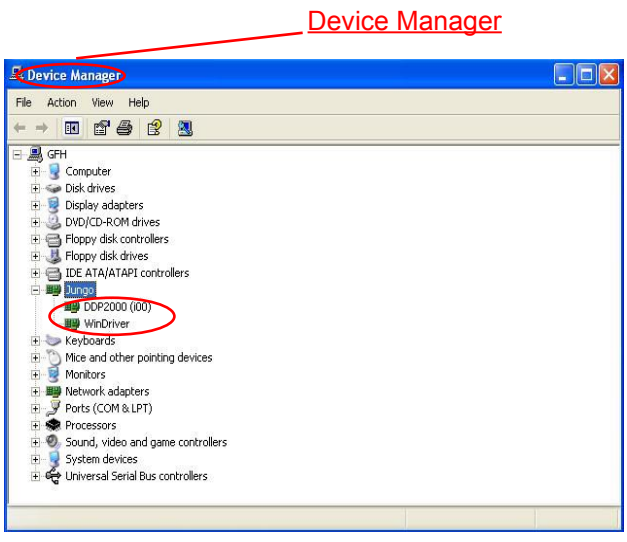
DLP Composer Lite Setup Procedure

No	Step	Procedure	Photo
1	Execute FW program	Choose “DLP Composer Lite v3.6 Setup” program.	
2	Next	Click “Next” button.	 DLP Composer (TM) Lite 3.6 Setup Welcome to the DLP Composer (TM) Lite 3.6 Installation Wizard It is strongly recommended that you exit all Windows programs before running this setup program. Click Cancel to quit the setup program, then close any programs you have running. Click Next to continue the installation. WARNING: This program is protected by copyright law and international treaties. Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law. < Back Next > Cancel
3	Next	1. Reading the “License Agreement” rules. 2. Choose “I accept and agree to be bound by all the terms and conditions of this License Agreement” icon. 3. Click “Next” button.	
4	Next	Click “Next” button.	 DLP Composer (TM) Lite 3.6 Setup Readme Information The following information describes this installation. DLP Composer™ Lite Release 3.6 Installation Location The default installation directory is: C:\Program Files\DLP Composer Lite If you want this release installed to a different directory (perhaps alongside a prior release of DLP Composer™ Lite), you must choose the "Custom" installation option and pick a different installation directory. USB Support - Installation (All Platforms) Wise Installation Wizard? Next > Cancel

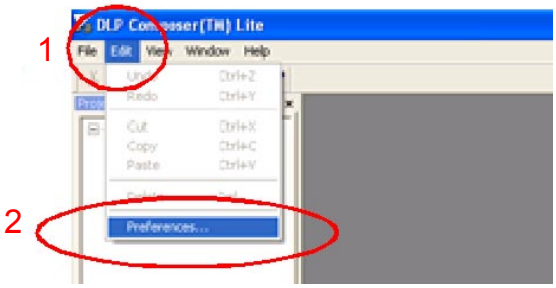
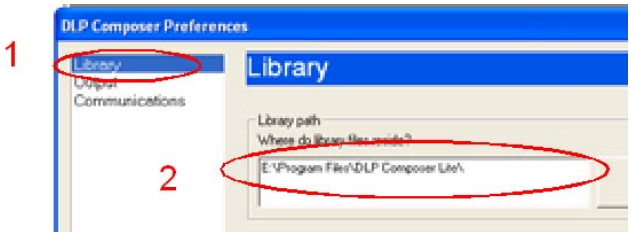
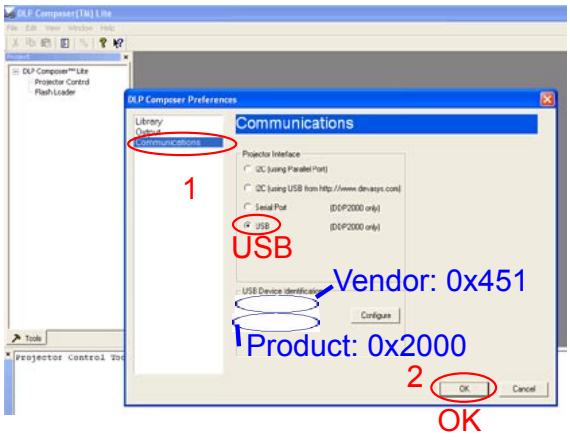
No	Step	Procedure	Photo
5	Next	1. Choose “All” icon. 2. Click “Next” button.	
6	Next	Click “Next” button.	
7	Process-ing	The program is execut-ing “Initializing” status.	

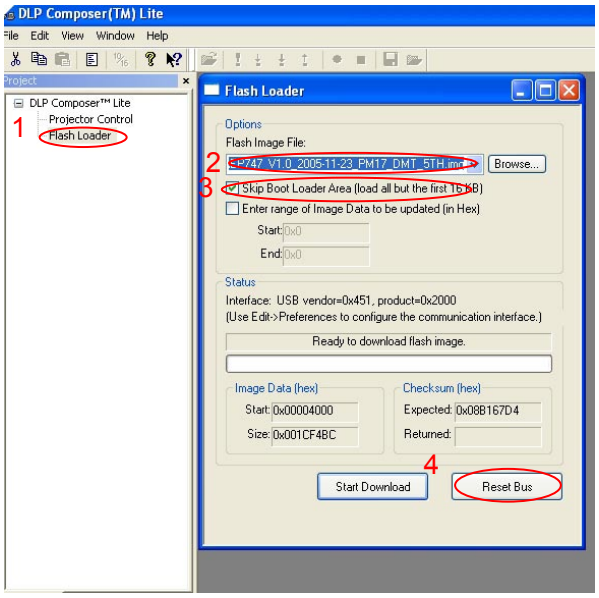
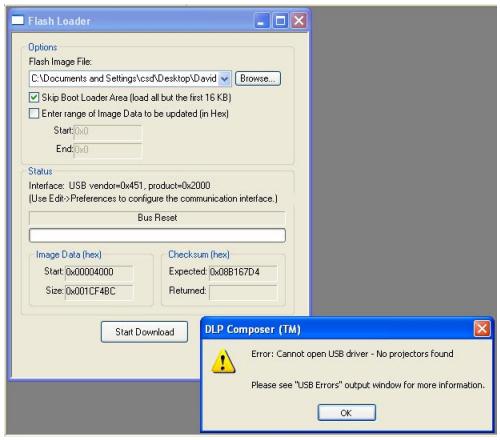
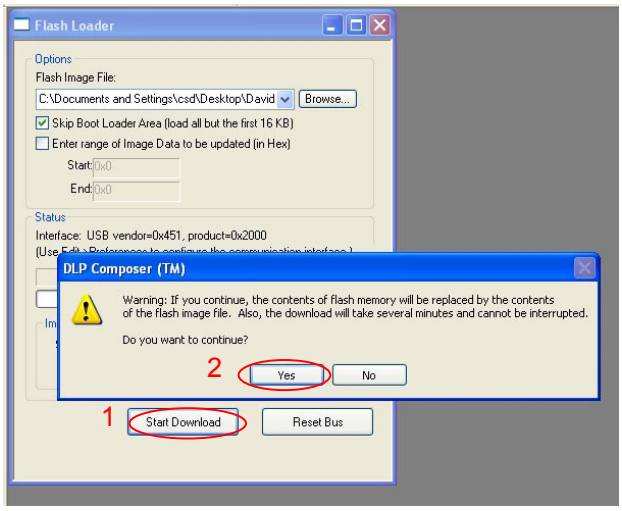
USB Driver Upgrade Procedure

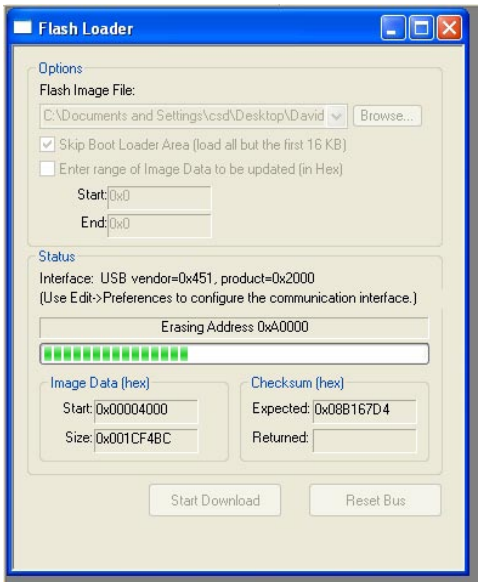
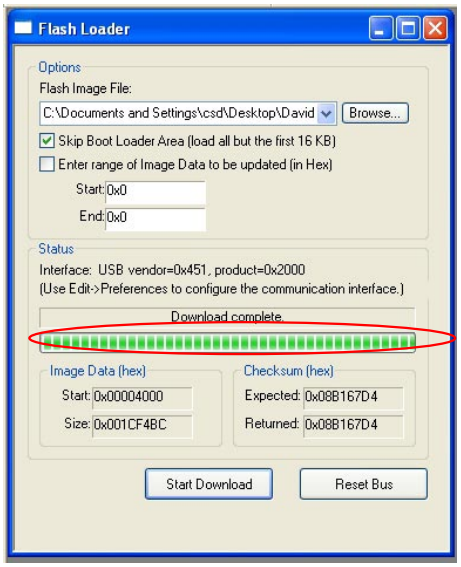
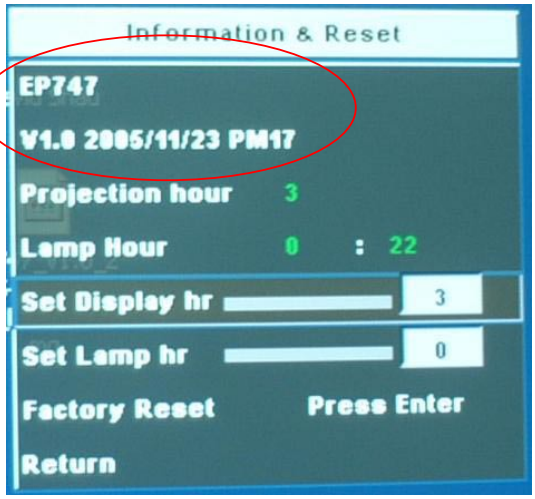
No	Step	Procedure	Photo
1	Set-up	1. Hold on “Enter” button and plug in Power Cord while holding on “Enter”. 2. Wait for about 5 secs. 3. Once Power, Lamp, Temp LED lights up, plug in USB Cable into the Projector & PC (Note: The system fan will not function. The light will not function as well.)	
2	Execute Program	Execute the C:\Program files\DLP Composer\usbupdata.cmd (Note: The “DLP Composer” program must be closed first.)	
3	Type any key to continue	Press any key to continue. Then, wait for about 1 minute.	

No	Step	Procedure	Photo
4	Update Success-fully	Click “OK”. The USB driver is updated suc-cessfully.	
5	Device Manager	1. Right click “My computer” on the desktop. 2. Select “Properties” on the popup menu to launch the “System Properties” window. 3. Choose “Hardware” and then click “Device Manager”.	
6	Ensure “DDP2000” & “Win-Driver” are properly installed	Click “Jungo” to ensure “DDP2000” and “Win-driver” are properly installed. If not, repeart Step 1~5.	

Firmware Upgrade Procedure

No	Step	Procedure	Photo
1	Set-up	1. Hold on “Enter” button and plug in Power Cord while holding on “Enter”. 2. Wait for about 5 secs. 3. Once Power, Lamp, Temp LED lights up, plug in USB Cable into the Projector and link to PC USB. (Note: The system fan will not function. The light will not function as well.)	
2		Execute the “DLP Compose™” file.	
3		Click “Edit” and “Preferences”.	
4		1. Click “Library”. 2. The library path located in the default installation directory is C:\Program Files\ DLP Composer. If not, press “Browse” to select the right path.	
5		1. Select “Edit\Preferences\Communications” and choose “USB”. 2. Click “OK”.	

No	Step	Procedure	Photo
6		1. Choose “Flash Loader” 2. Click “Browse” to search the firmware file. (EP747) 3. Select the item “Skip Boot Loader Area (load all but the first 16KB).” 4. Click “Reset Bus” to erase the flash memory. (Note: If the error message “cannot open USB driver - No projectors found” appears, please replug the USB Cable and check driver again and then re-do the above procedures.	 Note: 
7		1. If the firmware is ready, click “Start Download” to process the firmware upgrade. 2. Click “Yes” to erase the flash memory.	

No	Step	Procedure	Photo
8	Proceed-ing	Proceeding Picture	
9		1. When Firmware Upgrade Process is finished, the LED power light on. 2. Unplug USB Cable and Power Cord. Re-plug in Power Cable.	
10	Check Firmware	Restart the unit and enter the Service Mode to check the Firmware Version. (For entering Service Mode, please refer to Chapter 4 Function Test and Alignment Proce-dure.)	

EDID Upgrade

EDID Introduction

Extended **D**isplay **I**dentification **D**ata is a VESA standard data format that contains basic information about a display device and its capabilities, including vendor information, maximum image size, color characteristics, factory pre-set timings, frequency range limits, and character strings for the monitor name and serial number.

The information is stored in the display and is used to communicate with the system through a Display Data Channel (DDC), which sites between the display device and the PC graphics adapter. The system uses this information for configuration purposes, so the monitor and system can work together.

Note:

If a display device has digital input ports, like DVI or HDMI, but without EDID in its main board, the display device will show no image while the input source is digital signal.

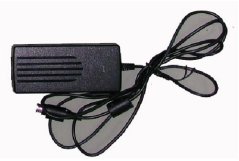
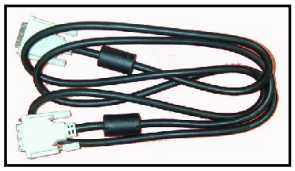
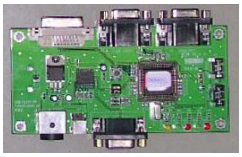
Equipment Needed

Software:

- EDID Program (Generic V0.51)
- EDID Table (*.ini)

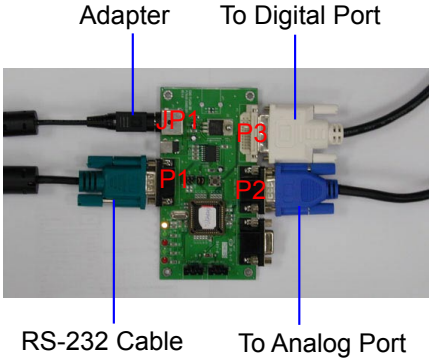
Hardware:

- Generic Fixture for EDID Key-in
  (Fixture: JP3 must be closed)

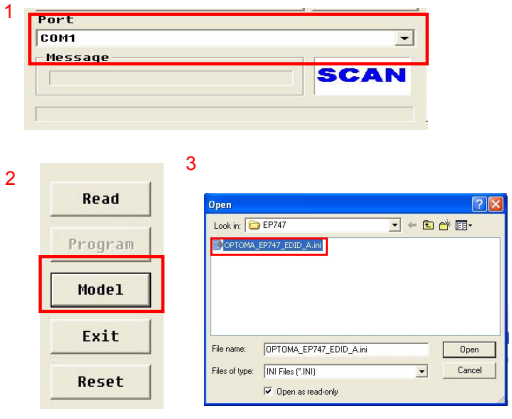
Item	Photo	Item	Photo
RS-232 Cable (F - M)		Power Adapter for Fixture	
DVI Cable		Generic Fixture	
VGA Cable		Power Cord	

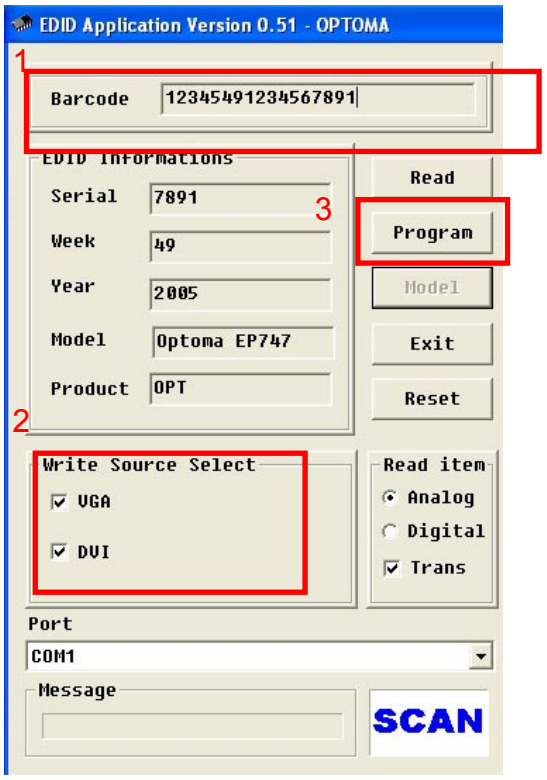
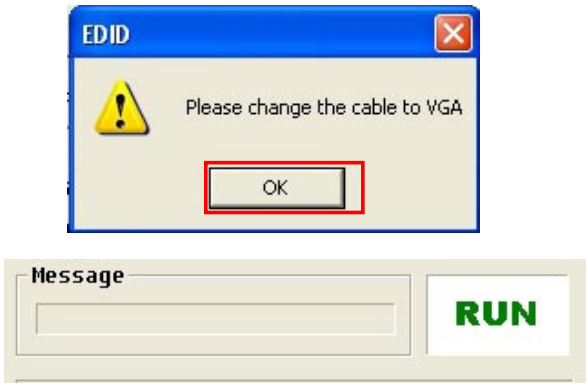
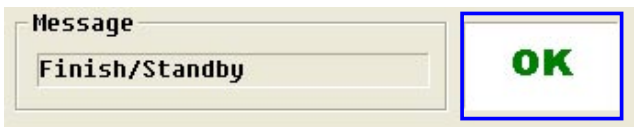
Item	Photo	Item	Photo
PC		One additional monitor (for checking the program execution)	
Projector (EP747)			

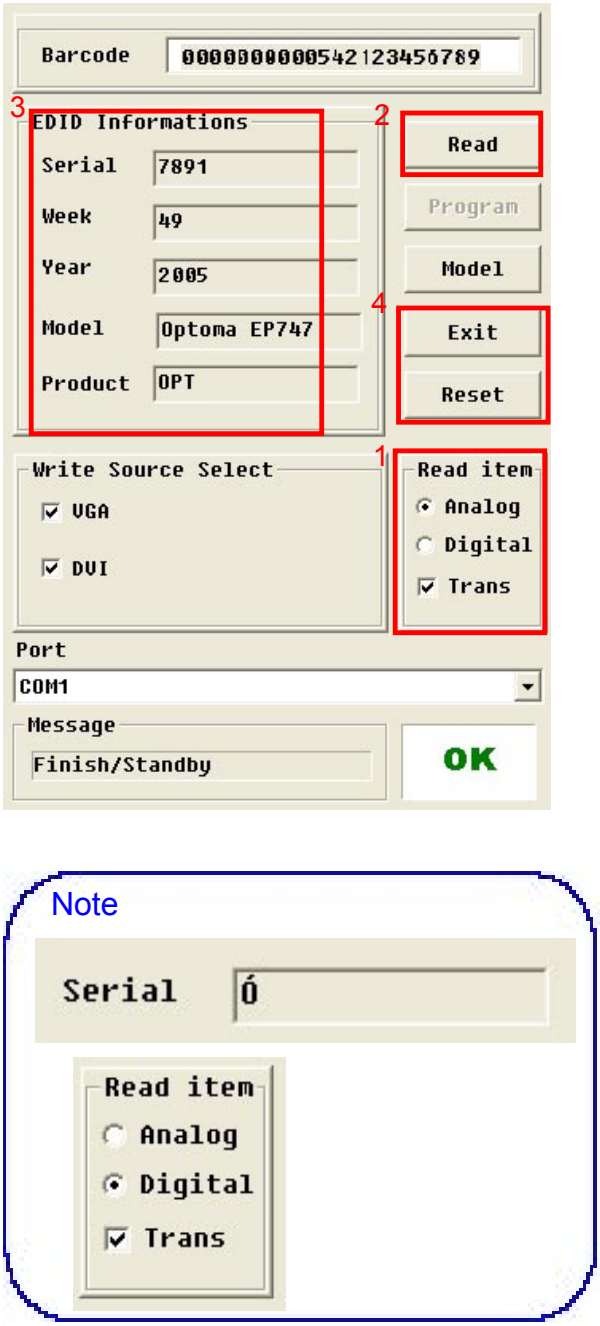
Setup Procedure

No	Step	Procedure	Photo
1	Connect All Ports	1. Power Adapter to Fixture JP1 2. Fixture P1 to PC COM1 Port 3. Fixture P2 to Projector Analog Port 4. Fixture P3 to Projector Digital Port	
2	Power On Fixture	Power on Fixture	

EDID Key-In Procedure

No	Step	Procedure	Photo
1	Execute EDID Program.	Click on “EDID” to execute EDID Program.	
2	Choose Model	1. In the Port Selection Bar, please choose the Port that you use. Ex: If you use “COM 1”, choose COM 1 in the Port selection. 2. Click on “Model”. 3. Choose the EDID that responses to the model that you choose.	

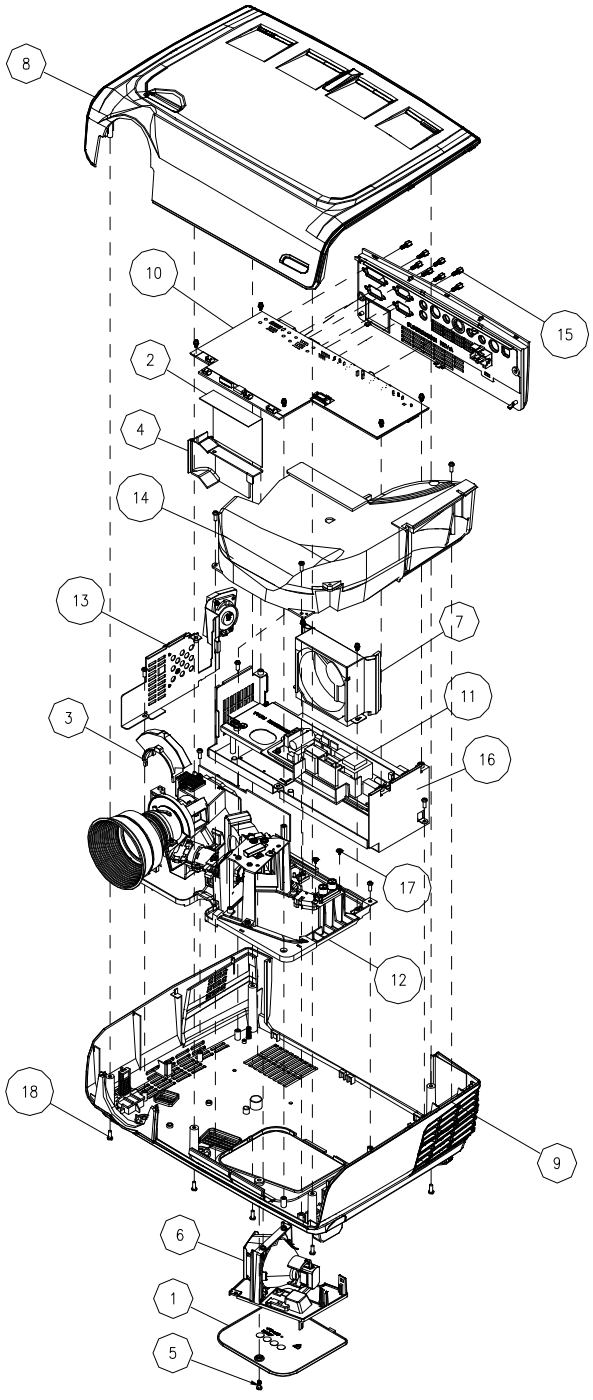
No	Step	Procedure	Photo
3	Key in Serial Number	1. Key in the Serial Number into the Barcode blank space. 2. In “Write Source Select”, make a check in “VGA” and “DVI”. 3. Click “Program”.	
4	Change Cable to Analog	“Please change the Cable to Analog” message is shown on the screen, then click “OK”. (Note: “RUN” message will appear on the screen.)	
5	Change Cable to Digital	“Please change the Cable to Digital” message is shown on the screen, then click “OK”. (Note: “RUN” message will appear on the screen.)	
6	Finished	When the EDID program is completed, the message, “OK”, will appear on the screen.	

No	Step	Procedure	Photo
7	Check the whole process	1. In the “Read Item” Selections, choose the Port that you use. Ex: If you use the Analog Port, choose “Analog” in the “Read Item”. 2. Click on “Read” to read EDID information. 3. The “EDID Informations” will show the result. (Note: After pressing “Read”, if the code in the Serial Blank is scrambled, please make a check in “Trans”.) 4. Click “Reset” to do the next unit or “Exit” to close the EDID program. PS. Both Analog and Digital are needed to be checked.	

Appendix A

Exploded Overview

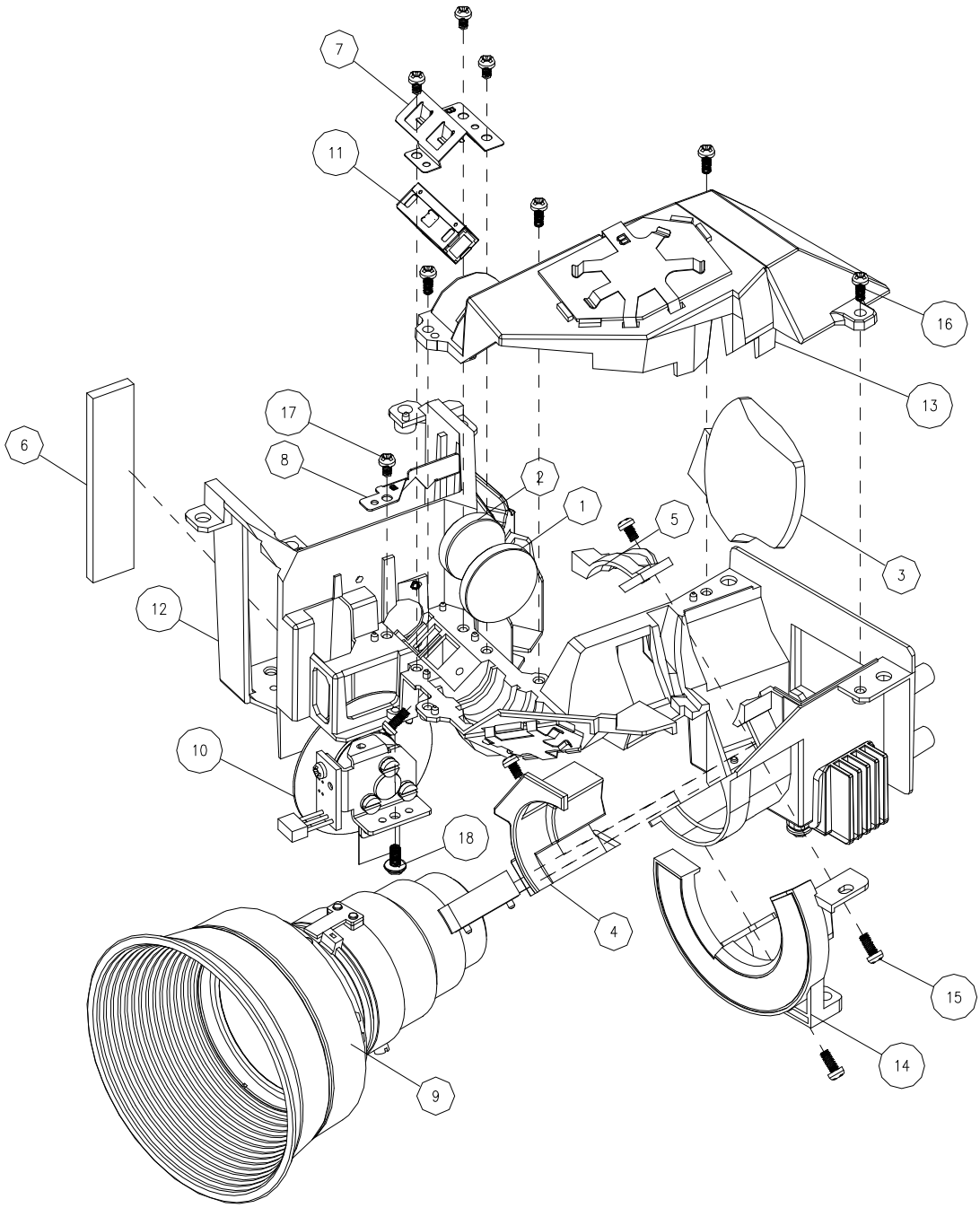
I. EP747 UNIT



Exploded Parts List

Item	PART_NO	Description
1	51.83F11G011	LAMP COVER PC+ABS EP747
2	51.83F30G001	DMD HEATSINK MYLAR FOR THERMAL GS 0.43t HD72
3	51.83R03G001	WT41 ZOOM RING PC EP747
4	51.83R06G001	BLOWER DUCT PC EP747
5	61.00018G002	LOCK SCREW PAN MECH M3*8.5-3.5 BLACK
6	70.83F04G001	ASSY LAMP MODULE HD72
7	70.83F20G001	ASSY AXIAL FAN MODULE HD72
8	70.83R01G001	ASSY TOP COVER MODULE EP747
9	70.83R02G001	ASSY BOTTOM COVER MODULE EP747
10	70.83R05G001	ASSY PCB MAIN BD MODULE EP747
11	70.83R06G001	ASSY POWER MODULE EP747
12	70.83R10G001	ASSY ENGINE & BOTTOM BASE MODULE EP747
13	70.83R20G001	ASSY SIDE SHIELDING MODULE EP747
14	75.83F01G001	BUY ASSY AIRDUCT MODULE HD72
15	85.005AG.408	SCREW HEX I/O #4-40 H4xL8 Ni NYLOK
16	85.1F123.060	SCREW PAN MECH W/SF M3x6 Ni
17	85.3A122.040	SCREW CAP MECH M2*4 Ni
18	85.WA123.080	.SCREW PAN TAP M3*8 Ni

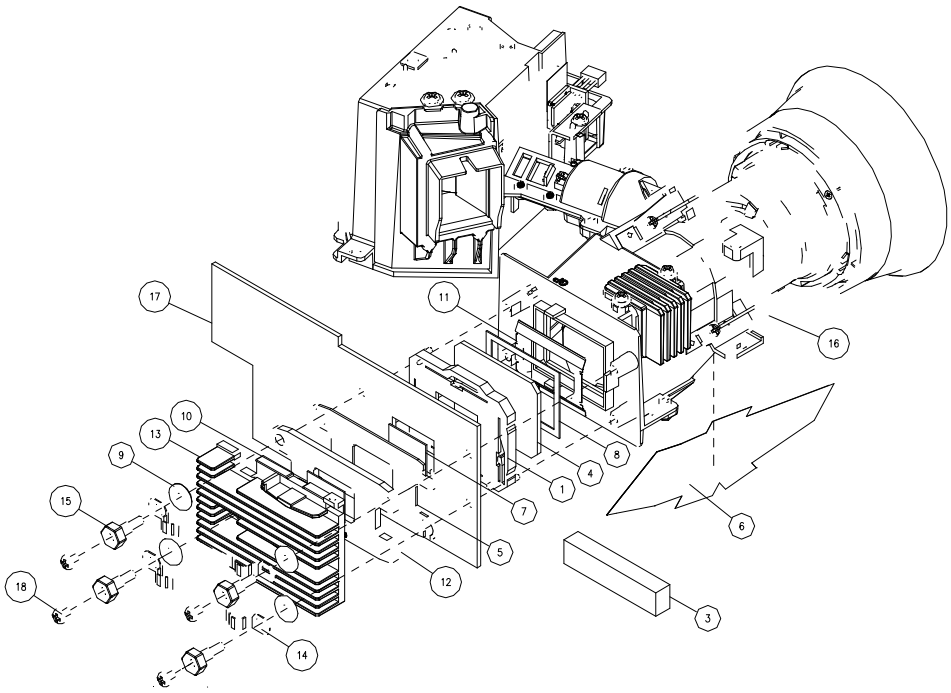
II. SUB ENGINE MODULE



Exploded Parts List

Item	PART_NO	Description
1	23.80J20G001	CONDENSER LENS2
2	23.80J20G011	CONDENSER LENS 3
3	23.83J06G001	GLASS RELAY LENS
4	52.81R03G001	LENS ANTIDUST 739 SILICONE RUBBER
5	52.81R12G001	RELAY ANTIDUST YM08 739 SILICONE RUBBER
6	52.81R18G001	PORON ENGINE TO DUCT DV10
7	61.80J05G002	ROD SPRING 739 SUS301 0.25t
8	61.83J09G001	ROD COVER SUS301 0.5t PD527
9	70.83R13G001	ASSY OPTICAL LENS MODULE EP747
10	70.83R14G001	ASSY COLOR WHEEL MODULE EP747
11	70.83R15G001	ASSY ROD MODULE EP747
12	70.83R16G001	PRE ASSY ENGINE BASE MODULE EP747
13	70.83R17G001	PRE ASSY ENGINE BASE MODULE EP747
14	75.80W15.002	BUY ASSY ZOOM RING STOP EMI MODULE 2300MP
15	85.1A326.060	SCREW PAN HEAD MECH M2.6x6 BLACK
16	85.1A526.060	SCREW PAN MECH M2.6x6 Ni NYLOK
17	85.1A626G040	SCREW PAN MECH M2.6x4 BLACK NYLOK
18	85.1F126G060	SCREW PAN MECH W/SF M2.6x6 Ni

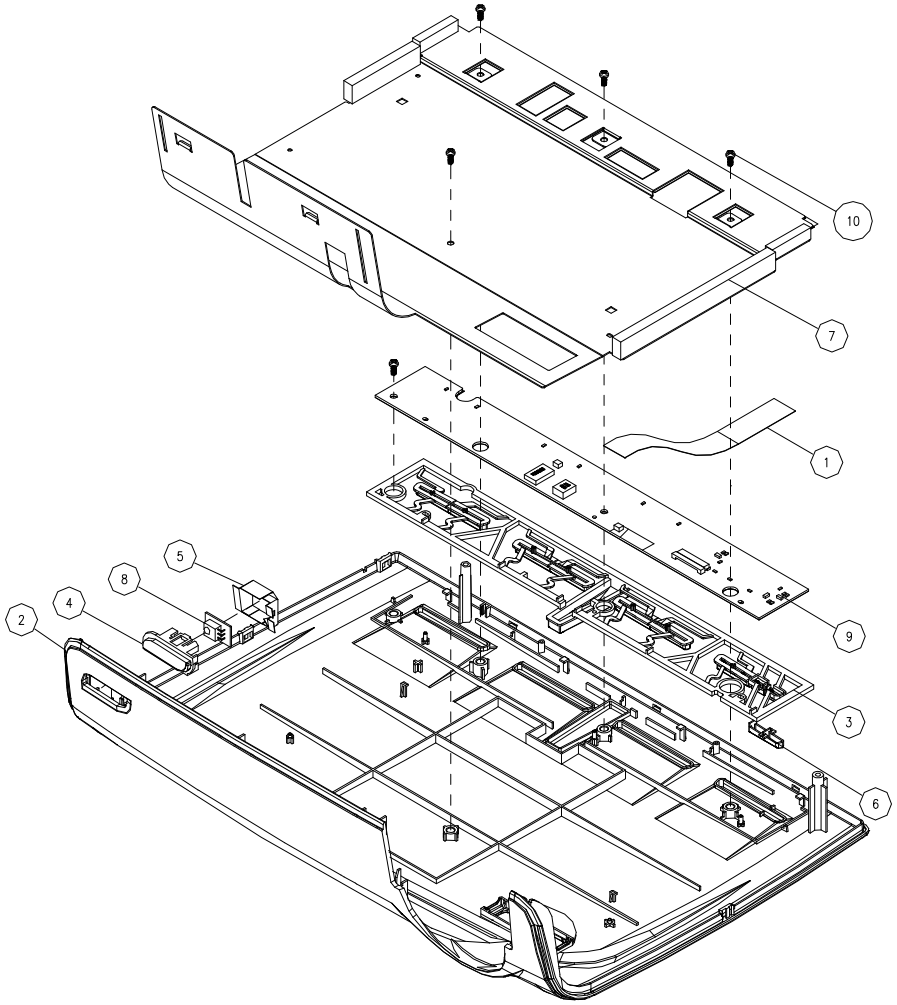
III. ENGINE MODULE



Exploded Parts List

Item	PART_NO	Description
1	11.009F0G005	CNNT F 166P FOR 0.55" SVGA LGA DMD SOCKET;FOXCONN
2	41.81R17G001	EMI GASKET TAPE 0.13t FOR ENGINE DV10
3	41.83F05G001	GASKET h%%204%%160/(L*45,W*7,H*10)
4	48.858DMGD14	DMD 1024*768 PIXEL DDR FTP 0.7" XGA
5	51.80B31G002	DMD INSULATOR MYLAR 0.435t T90
6	51.80W33G001	ENGINE BOTTOM MIRROR1 TAPE 3M-J350 2300MP "GREEN"
7	51.80W44G001	8*10*0.5t MYLAR FOR 2300MP
8	52.80J01G001	DMD ANTIDUST RUBBER 739 SILICONE RUBBER
9	52.87130G001	RUBBER BLOWER 595925
10	52.87319G001	DMD THERMAL PAD 18*13*0.5t
11	61.80J10G001	DMD LIGHT MASK 739 SUS301
12	61.80J48G002	DMD HEATSINK BACKER PLATE A6061 739
13	61.88605G001	DMD HEATSINK A1070 Ivy10X
14	61.88608G001	DMD HEATSINK SPRING PLATE SUS301 0.4t Ivy10X
15	61.88611G001	DMD SCREW Ivy10X
16	70.83R12G001	ASSY SUB ENGINE MODULE EP747
17	80.83R02G001	PCBA DMD BD FOR EP747
18	85.1A523G040	SCREW PAN MECH M3*4 NYLOK

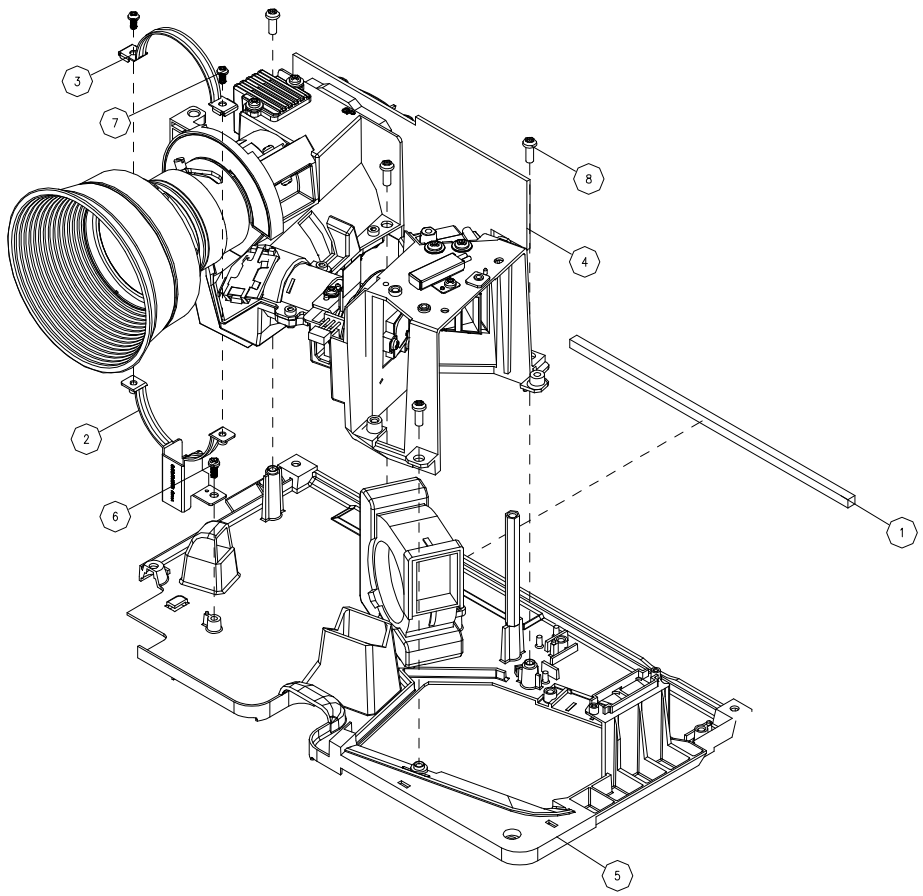
IV. TOP COVER MODULE



Exploded Parts List

Item	PART_NO	Description
1	42.83F04G001	CABLE FFC 14P PITCH=1.0mm HD72
2	51.83F01G011	TOP COVER PC+ABS EP747
3	51.83F07G011	KEYPAD BUTTOM PC EP747
4	51.83F08G011	IR FRONT LENS EP747
5	51.83F26G001	FRONT IR MYLAR 0.2t HD72
6	51.83F29G001	KEYPAD LED LENS HOLDER PC HD72
7	75.83F09G001	BUY ASSY TOP SHIELDING MODULE HD72
8	80.83F04G001	PCBA IR SENSOR BD H72
9	80.83R03G001	PCBA KEYPAD BOARD EP747
10	85.1A123.040	SCREW PAN MECH M3x4 Ni

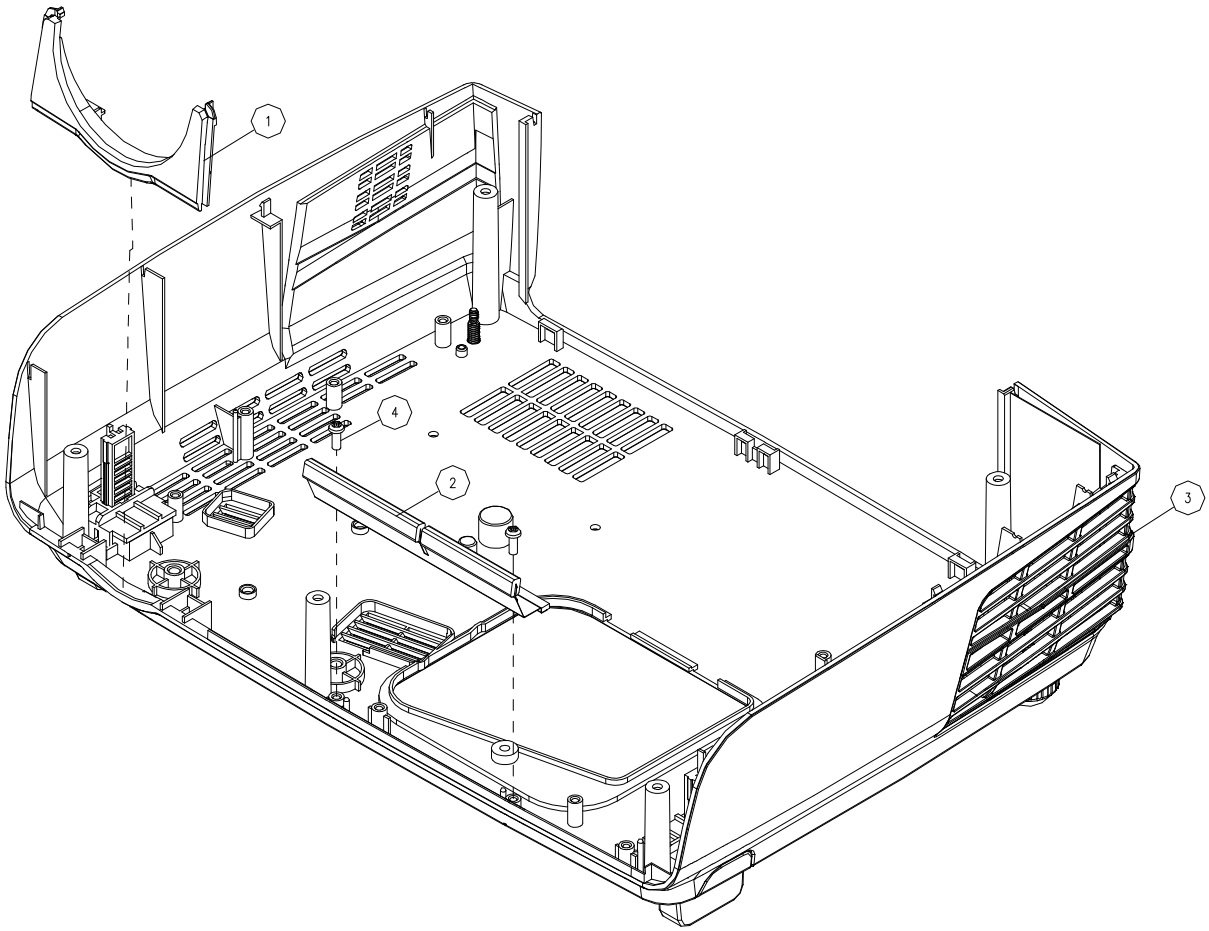
V. ENGINE AND BOTTOM BASE MODULE



Exploded Parts List

Item	PART_NO	Description
1	41.83F04G001	GASKET h%%204%%160/(L*125,W*7,H*2)
2	61.83R05G001	DOWN LENS SUPPORTER SECC t=0.8mm EP747
3	61.83R06G001	UP LENS SUPPORTER SECC t=0.6mm EP747
4	70.82G11G001	ASSY LAMP CHANGE PLATE MODULE EP7190
5	70.83F18G001	ASSY BOTTOM BASE MODULE H72
6	85.1A123G050	SCREW PAN MECH M3x5 Ni
7	85.1A126.050	SCREW PAN MECH M2.6*5 (Ni)
8	85.WA123.080	.SCREW PAN TAP M3*8 Ni

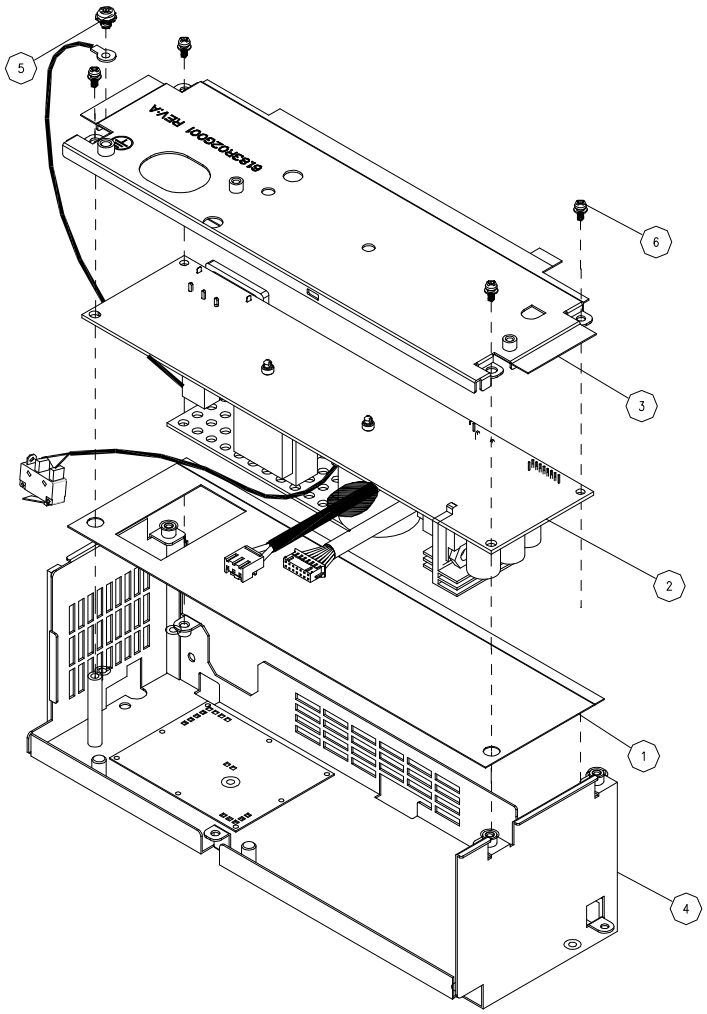
VI. BOTTOM COVER MODULE



Exploded Parts List

Item	PART_NO	Description
1	51.83F12G011	FRONT LOWER PANEL PC+ABS EP747
2	75.83F05G001	BUY ASSY FRONT SIDE SHIELDING HD72
3	75.83R03G001	BUY ASSY BOTTOM COVER MODULE EP747
4	85.WA123.080	.SCREW PAN TAP M3*8 Ni

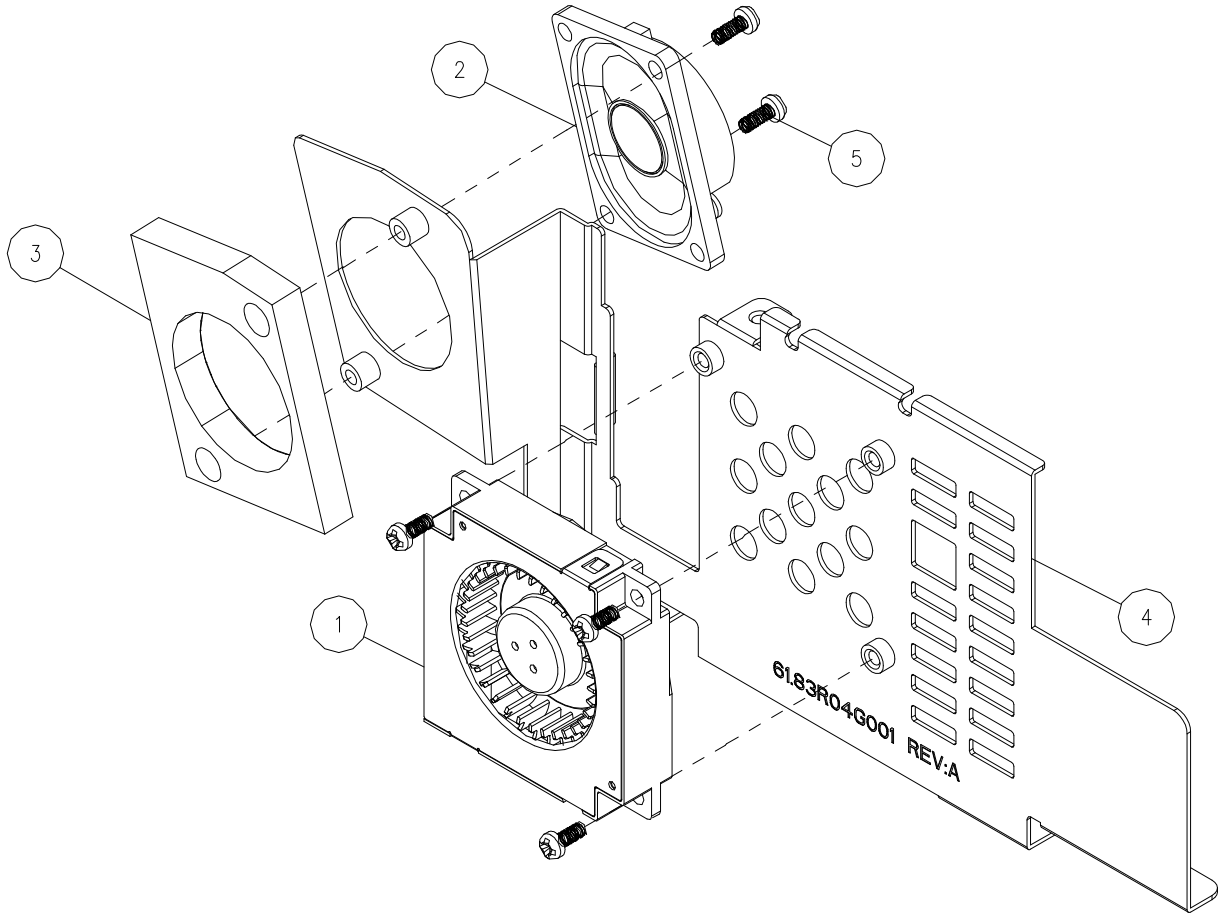
VII. LVPS MODULE



Exploded Parts List

Item	PART NO	Description
1	51.83R08G001	POWER SHIELDING FORMAX MYLAR EP747
2	70.83R09G001	ASSY SUB LVPS MODULE EP747
3	75.83R05G001	BUY ASSY LVPS SHIELDING MODULE EP747
4	75.83R06G001	BUY ASSY POWER SHIELDING MODULE EP747
5	85.1C224.050	SCREW PAN MECH M4*5 COLOR W/TOOTH WASHER
6	85.1F123.060	SCREW PAN MECH W/SF M3x6 Ni

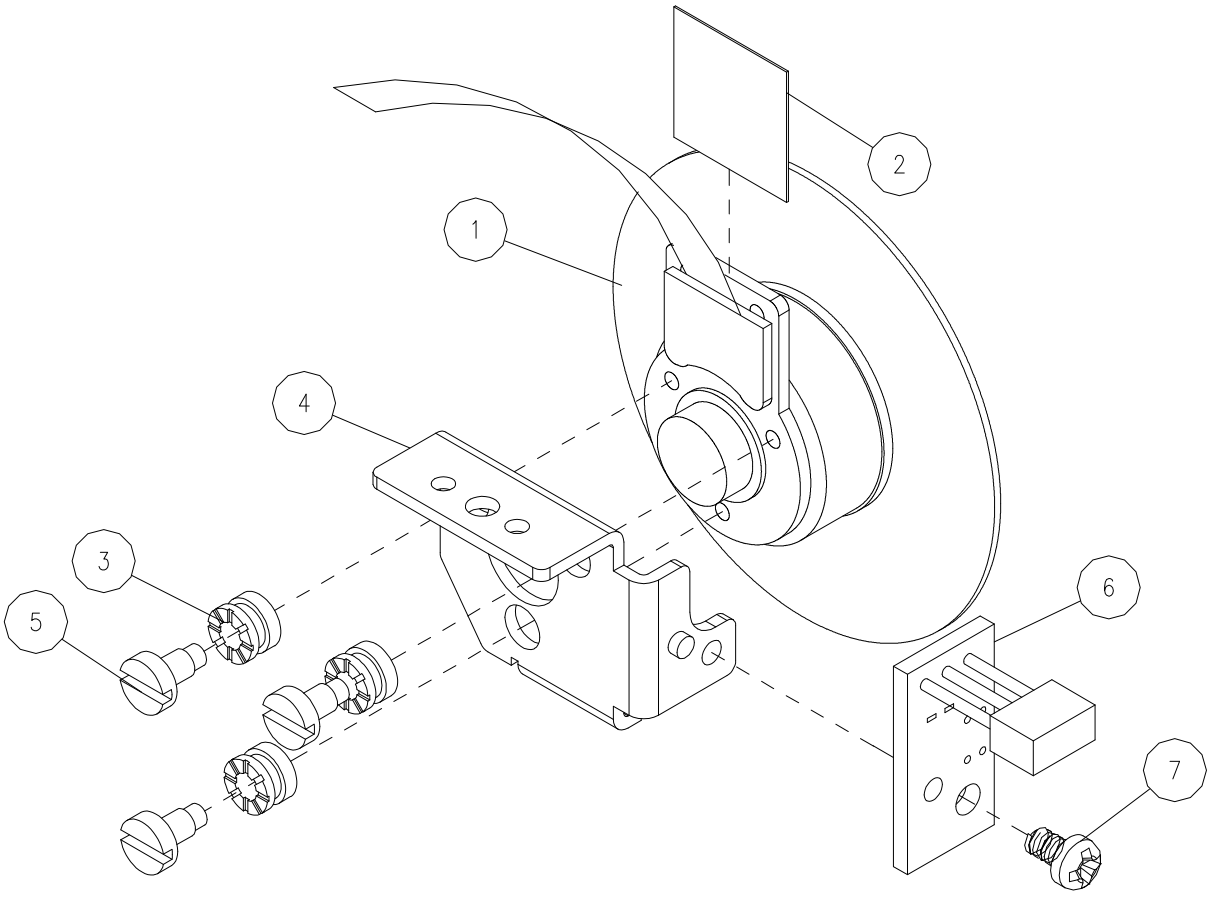
VIII. SIDE SHIELDING MODULE



Exploded Parts List

Item	PART NO	Description
1	49.83J03G001	MISC 45x10 DMD BLOWER, SUNON B1245PFV1-8A, R TYPE
2	49.83R01G001	SPEAKER 4ohm 3W 90mm EP747
3	52.83R01G001	SIDE SPEAKER SPONGE EP747
4	61.83R04G002	SIDE SHIELDING AL 5052 t=0.8mm EP747
5	85.1A123.060	SCREW PAN MECH M3x6 Ni

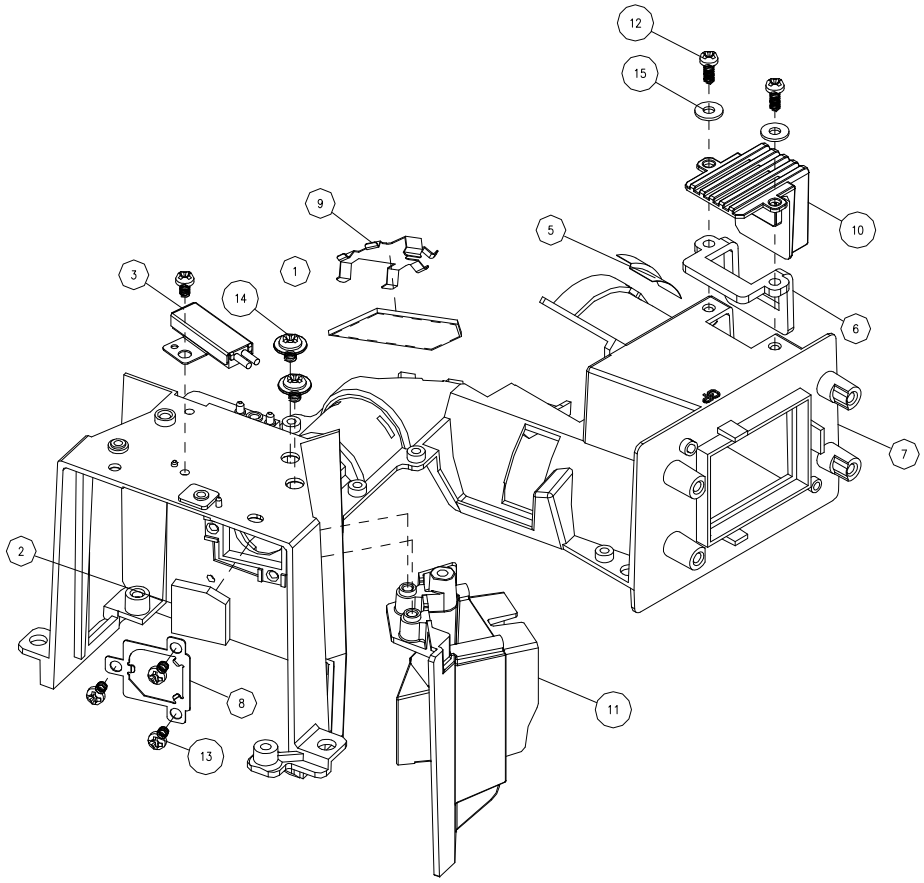
IV. Color Wheel Module



Exploded Parts List

Item	PART NO	Description
1	23.83J19G001	COLOR WHEEL R92/G83/W110/B75, SLEEVE BEARING OF DP739 SERIES
2	51.80J38G002	MYLAR CW SUPPORT 739 FRPP 0.125t
3	52.83615.001	COLOR WHEEL DISC RUBBER , EzPro755
4	61.80J08G002	CW HOLDER 739 SECC 1.2t
5	61.83628G001	COLOR WHEEL SHOULDER SCREW , EzPro755
6	80.80N04.001	PCBA PHOTO SENSOR BD EP739
7	85.1A626G040	SCREW PAN MECH M2.6x4 BLACK NYLOK

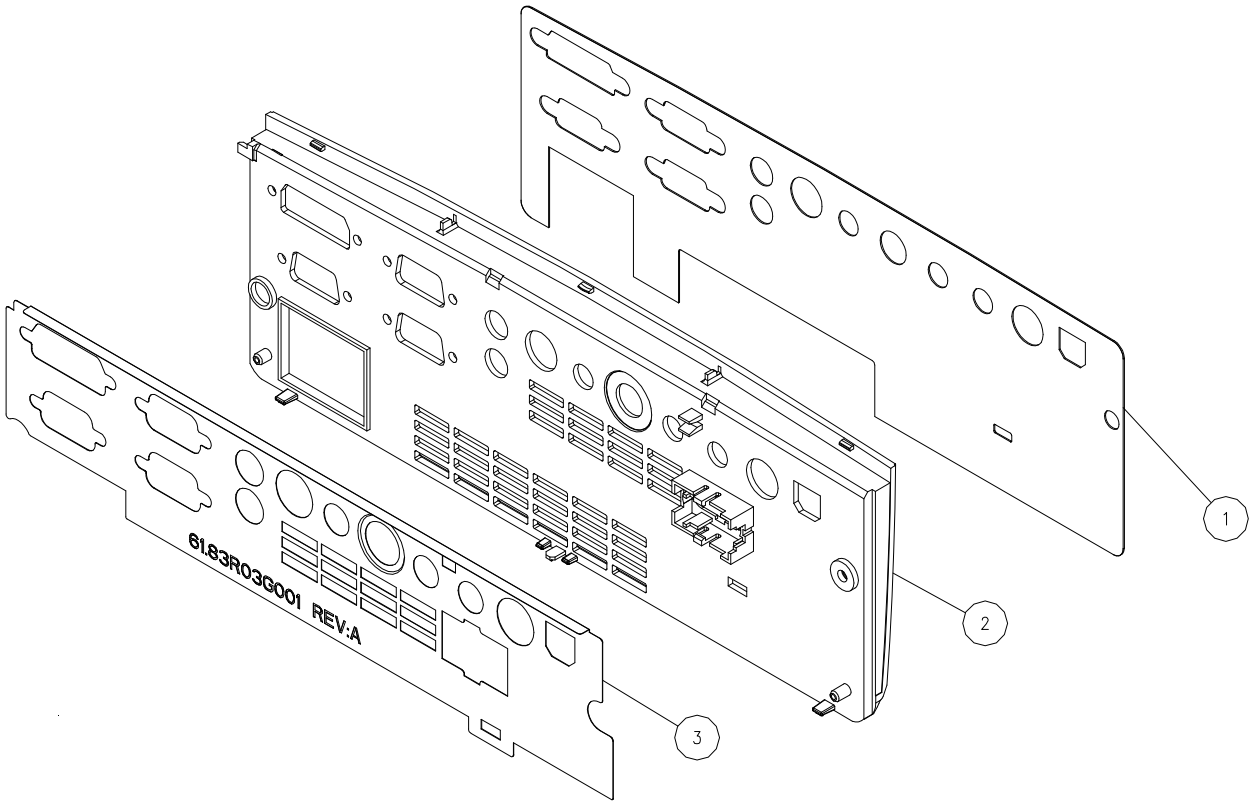
X. ENGINE BASE MODULE



Exploded Parts List

Item	PART_NO	Description
1	23.80J02G011	REFLECTION MIRROR2 OF DP739 SERIAL
2	23.80S10G001	UV/IR FILTER OF DP739 SERIES
3	43.80W01G001	YS11 THERMAL SWITCH
4	51.80W34G001	ENGINE BASE MIRROR2 TAPE 3M-J350 2300MP
5	51.81542G001	TAPE 3M J350 17*15mm
6	52.80J02G002	OFF LIGHT ISOLATOR 739 SILICONE RUBBER
7	61.80J01G001	ENGINE BASE 739 Mg ALLOY
8	61.80J02G001	UVIR HOLDER 739 SUS301 0.3t
9	61.80J07G001	SPRING MIRROR2 739 SUS301 0.25t
10	61.80J39G001	OFF LIGHT PLATE AL VULCAN-1
11	61.83F17G001	BLOWER DUCT AL H72
12	85.1A326.060	SCREW PAN HEAD MECH M2.6x6 BLACK
13	85.1A626G040	SCREW PAN MECH M2.6x4 BLACK NYLOK
14	85.5A126G040	SCREW BINDING MECH M2.6x4 Ni
15	87.FL030G008	WASHER FLAT 7*3.1*0.8t PC PINGOOD WS-1M

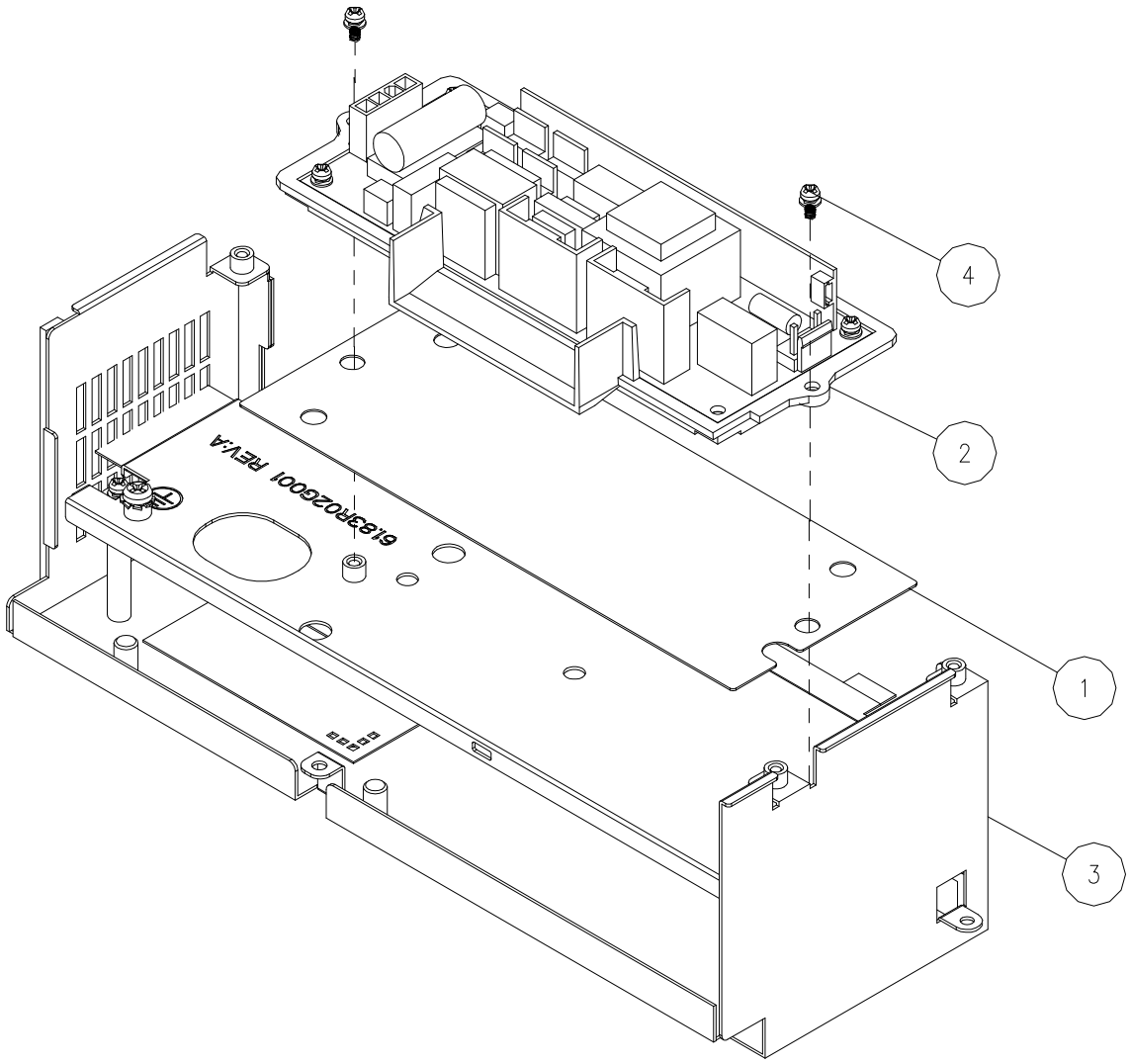
XI. I/O COVER FAN MODULE



Exploded Parts List

Item	PART NO	Description
1	35.83R01G001	IO LABEL PC 8B35 EP747
2	51.83R02G001	IO COVER EP747
3	75.83R04G001	BUY ASSY IO COVER MODULE EP747

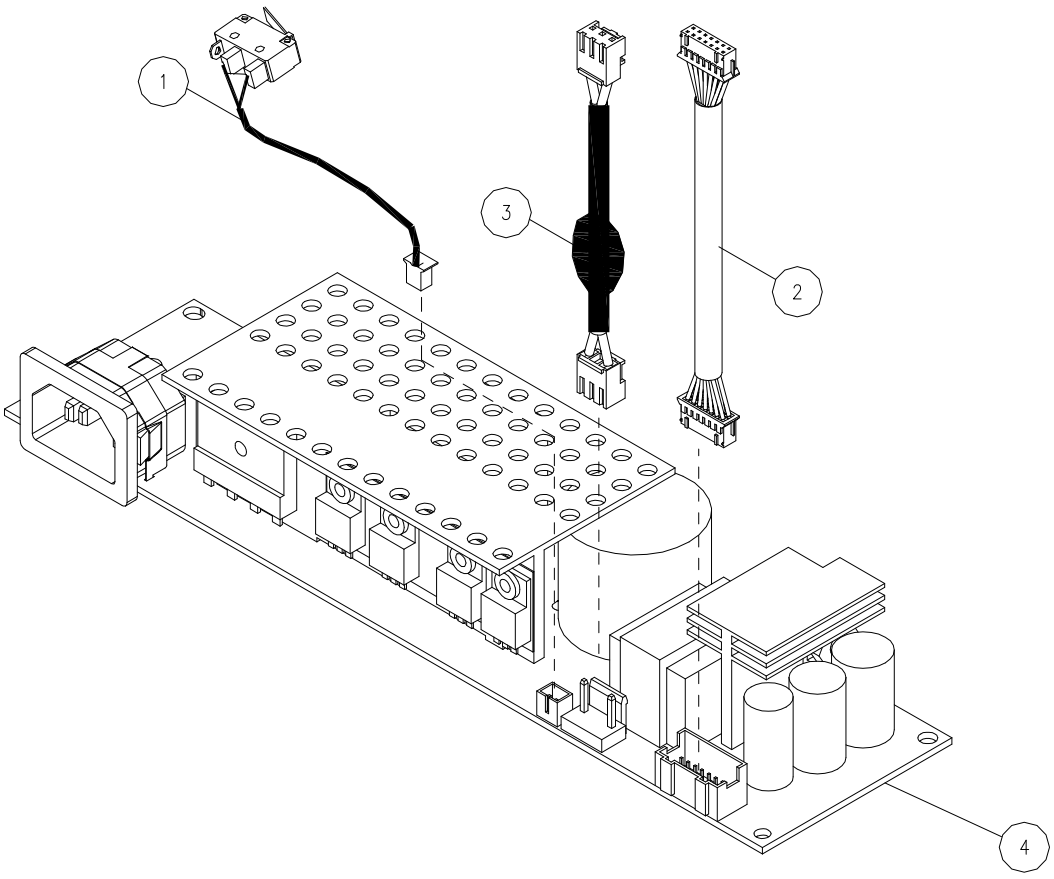
XII. POWER MODULE



Exploded Parts List

Item	PART NO	Description
1	51.83R10G001	LAMP DRIVER HOLDER MYLAR FORMAX EP747
2	70.83R07G001	ASSY LAMP DRIVER MODULE EP747
3	70.83R08G001	ASSY LVPS MODULE EP747
4	85.1F123.060	SCREW PAN MECH W/SF M3x6 Ni

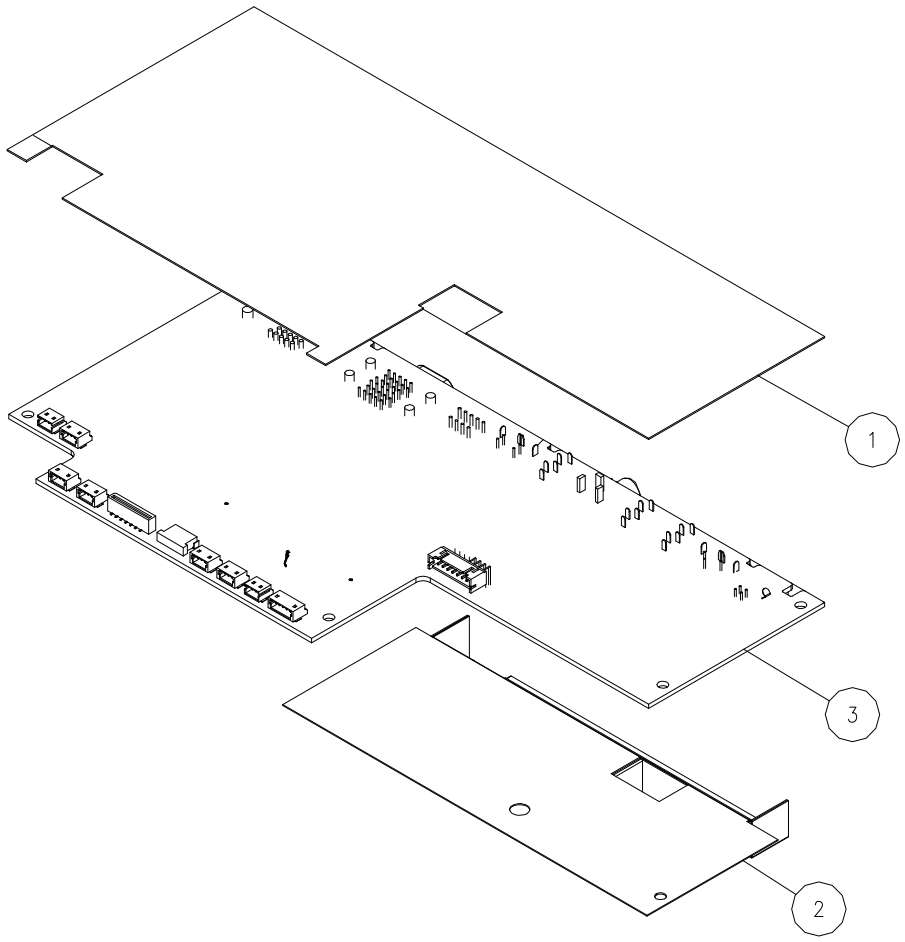
XIII. SUB LVPS MODULE



Exploded Parts List

Item	PART NO	Description
1	75.80J02G001	ASSY INTERRUPTER SWITCH
2	42.83R01G001	W.A. 16P 170mm LVPS TO M/B EP747
3	42.89602.001	W.A. 3P #20 180mm LAMP DRIVER TO LAMP EP759
4	75.83M01G002	ASSY LITEON LVPS 2400MP

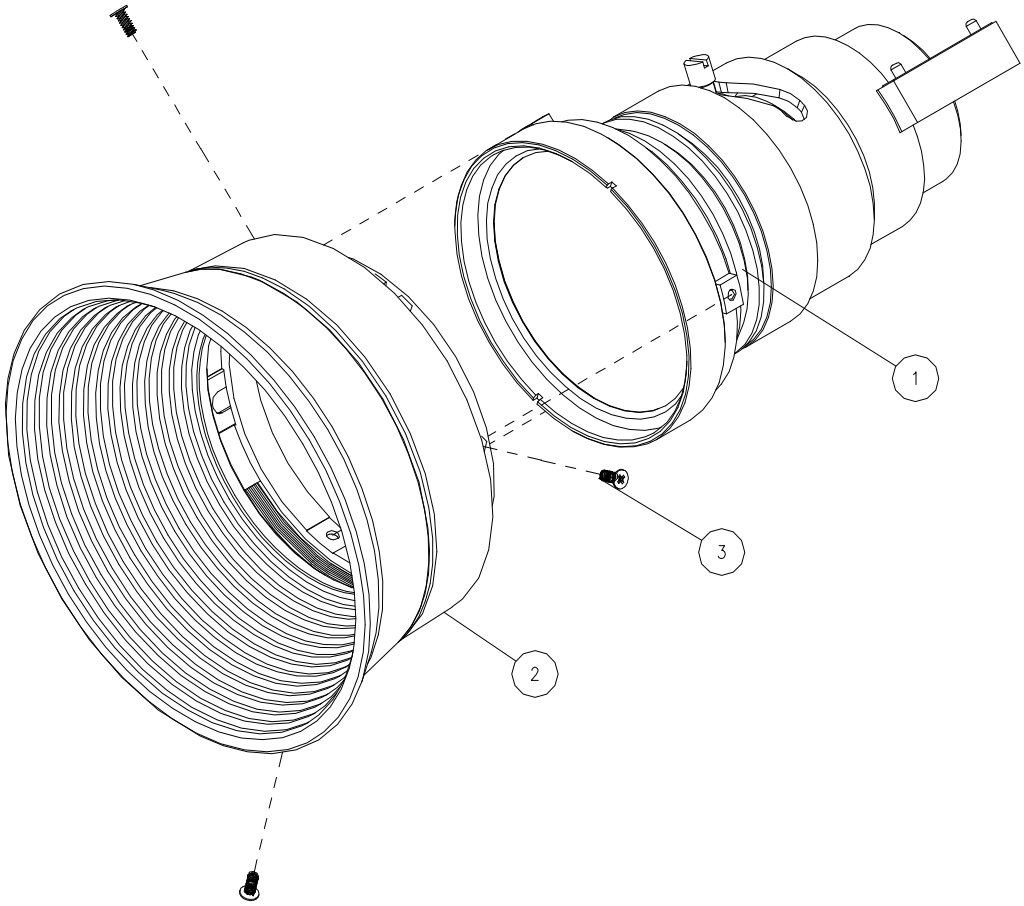
XIV. MAIN BOARD MODULE



Exploded Parts List

Item	PART NO	Description
1	51.83F23G001	MB UP INSULATOR MYLAR FRPP 0.43t H72
2	51.83R09G001	MB DOWN INSULATOR MYLAR Frpp 0.43t EP747
3	80.83R01G001	PCBA MAIN BD FOR EP747

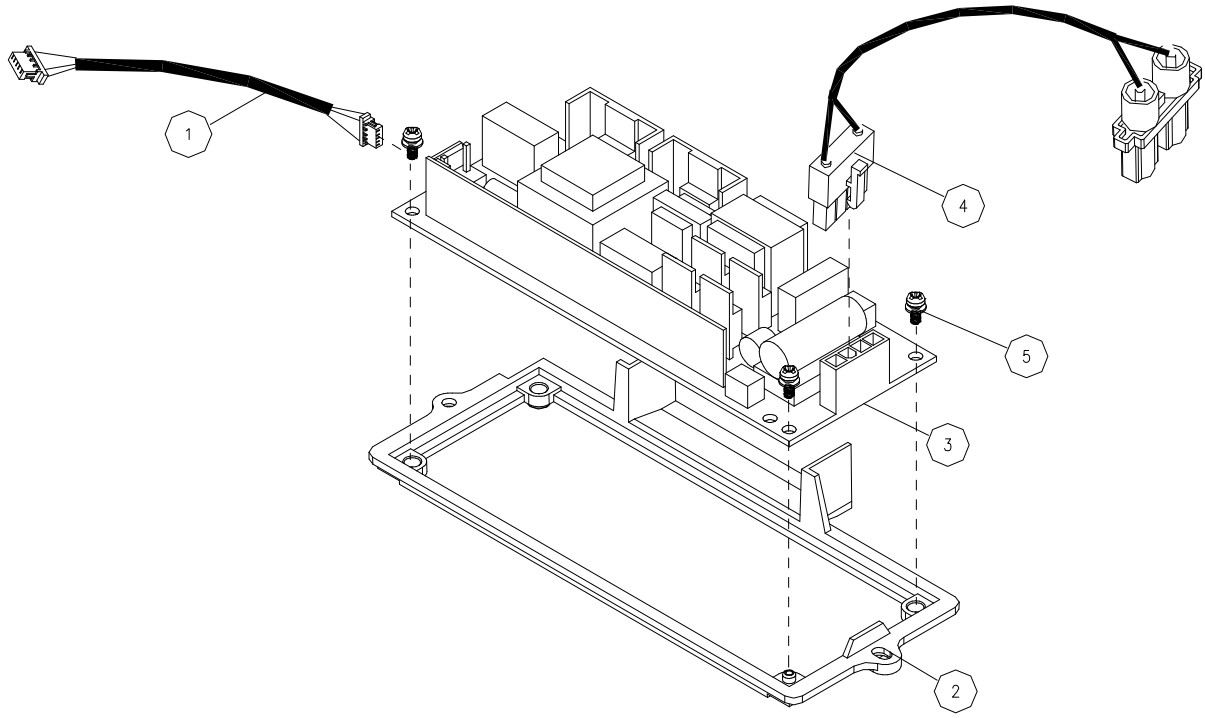
XV. OPTICAL LENS MODULE



Exploded Parts List

Item	PART NO	Description
1	23.89601G001	YM06 1.2X XGA ZOOM PROJECTION LENS
2	75.83R07G001	BUY ASSY FORCUS RING MODULE EP747
3	85.YA121G040	SCREW FLAT HEAD TAP M1.7*4 Ni

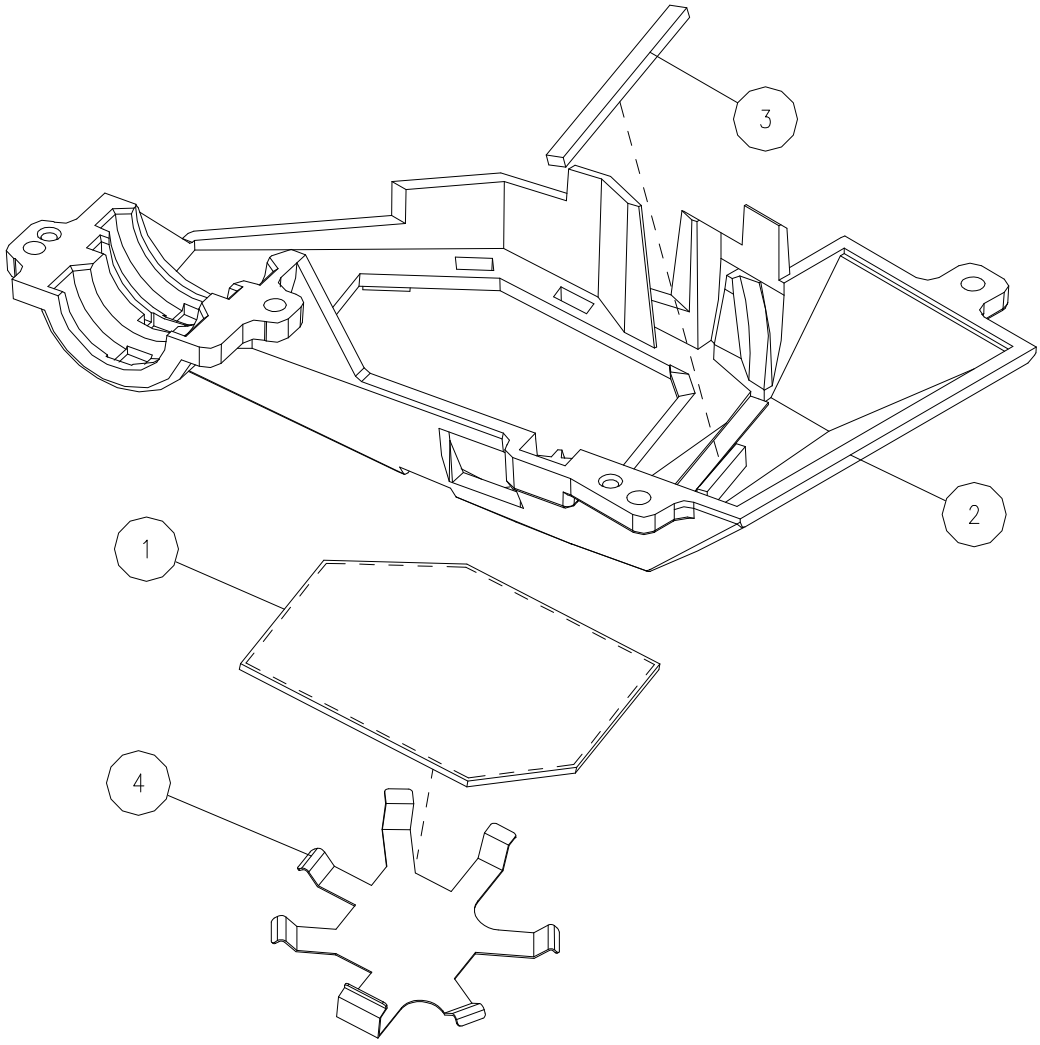
XVI. LAMP DIRVER MODULE



Exploded Parts List

Item	PART NO	Description
1	42.80S03G001	W.A. 5P #28 210mm LVPS TO MB TDP-T90
2	51.83F20G001	LAMPDRIVER HOLDER PC+ABS MN3600 HD72
3	75.83J01G001	ASSY OSRAM LAMPDRIVER 230W
4	76.83F01G001	ASSY LAMP DRIVER(OSRAM)) TO LAMP W.A. HD72
5	85.1F123.060	SCREW PAN MECH W/SF M3x6 Ni

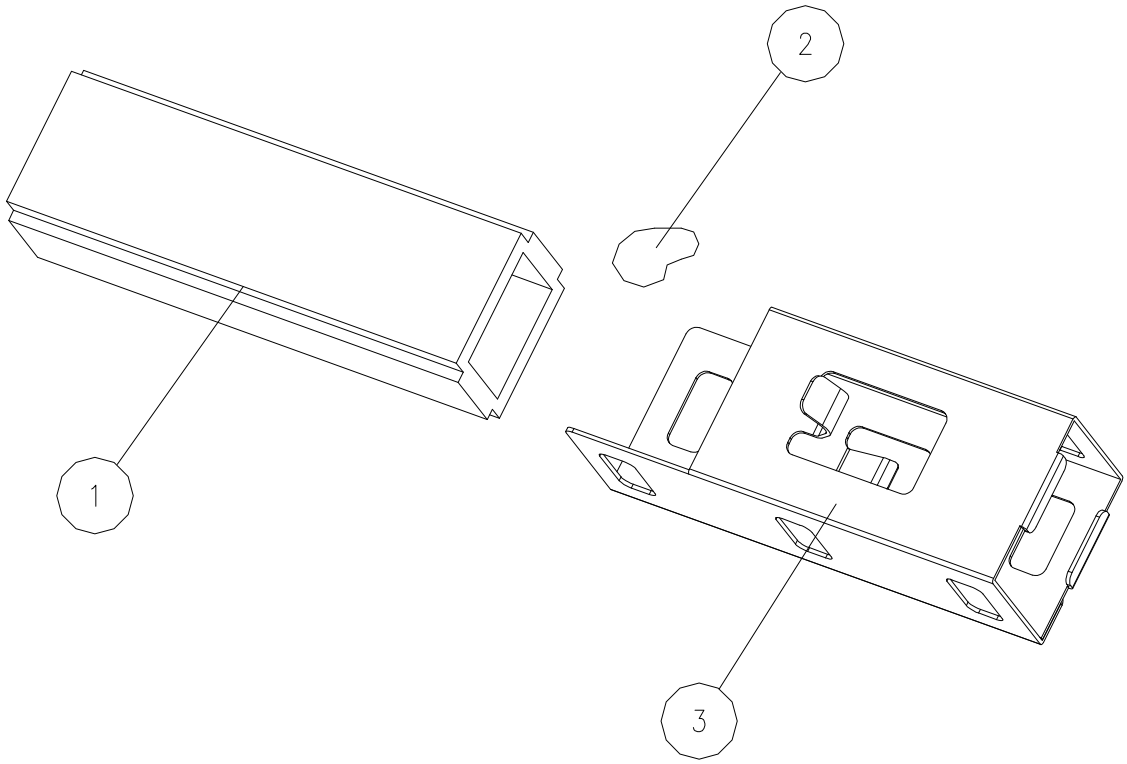
XVII. ENGINE BASE MODULE



Exploded Parts List

Item	PART NO	Description
1	23.80J02G001	REFLECTION MIRROR1 OF DP739 SERIAL "
2	51.80J01G001	ENGINE BOTTOM 739 BMC
3	52.80J05G002	PORON RELAY 739 SILICONE RUBBER
4	61.80J06G001	SPRING MIRROR1 739 SUS301 0.25t

XVIII. ROD MODULE



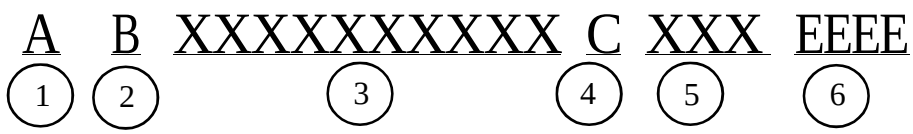
Exploded Parts List

Item	PART NO	Description
1	23.83L17G001	INTEGRATION ROD FOR 739 XGA GLASS RELAY SERIES
2	57.81501.001	UV GLUE 6-628-GEL DYMAX
3	61.83J10G001	ROD HOLDER SUS301 0.2t PD527

Appendix B

I. PCBA Code Definition

PCBA Code for Projector



1 : ID — C: M/B, B: DMD/ B

2 : Vendor Code

3 : P/N

4 : Revision

5 : Date Code

6 : S/N

Appendix C

Serial Number System Definition

Serial Number Format for Projector

A	BBB	Y	WW	C	D	BEMO	EEEE
①	②	③	④	⑤	⑥	⑦	⑧

① : A = Optoma, B~Z = OEM

② : Product code (ex: 83R = EP747)

③ : Y = Last number of the year (ex: 200<u>5</u> - 5)

④ : Week of year

⑤ : Panel vendor code

⑥ : Electrical classification (1=110V, 2=220V, 0=universal)

⑦ : B = BIOS version, E = PCB board version,
M = Mechanical version, O = Optical version

⑧ : Serial code (from 0001~)

EX : A83R529T0AAAA1001

This label "A83R529T0AAAA1001" represents the whole serial number for EP747, including Ver. 1st of BIOS and Ver. 1 of PCB Board. Both mechanical and optical version are 1st. In addition, panel vendor is TI. It's produced on 29s-week of 2005 for universal area and its serial code is 1001.

Reader's Response

Dear Readers:

Thank you for your backing our service manual up. In order to refine our content of the service manual and satisfy your requirement. We expect you can offer us some precious opinions for reference.

Assessment:

A. What do you think about the content after reading EP747 Service Manual?

Unit	*Excellent*	*Good*	*Fair*	*Bad*
1. Introduction				
2. Disassembly Procedure				
3. Troubleshooting				
4. Function Test & Alignment Procedure				
5. Firmware Upgrade Procedure				
6. DDC key-in Procedure				
7. Appendix				

B. Are you satisfied with the EP747 service manual?

Item	*Excellent*	*Good*	*Fair*	*Bad*
1. Service Manual Content				
2. Service Manual Layout				
3. The form and listing				

C. Do you have any other opinion or suggestion about this service manual?

Reader's basic data:

Name:		Title:	
Company:			
Add:			
Tel:		Fax:	
E-mail:			

After your finishing this form, please send it back to Coretronic Customer Service Dept. by fax: 886-3-563-5333.